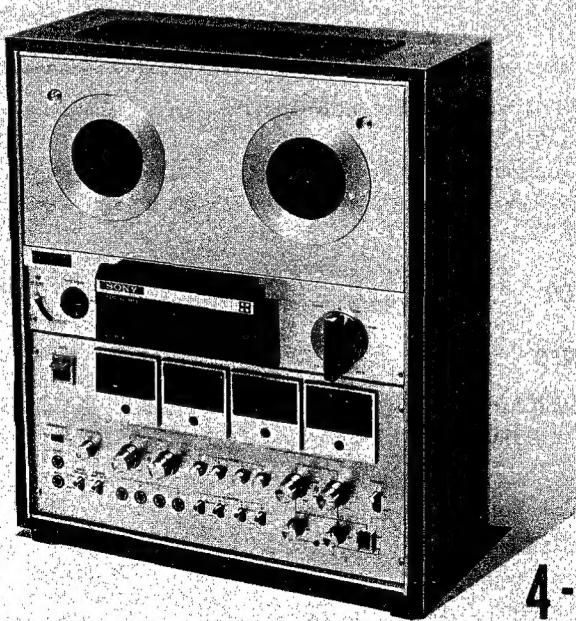


# TC-388-4

USA Model  
PX Model



## 4-CHANNEL STEREO TAPECORDER

### SPECIFICATIONS

|                            |   |                         |   |
|----------------------------|---|-------------------------|---|
| <b>Power Requirements:</b> | 120 V AC, 60 Hz (USA Model)<br>120 V AC, 60 Hz (100, 110, 127,<br>220, 240 V AC, 50 Hz adjustable<br>by the Sony personnel) (PX Model)  | <b>Wow and Flutter:</b> | 0.09 % at 19 cm/s (7½ ips)<br>0.12 % at 9.5 cm/s (3¾ ips)   |
| <b>Power Consumption:</b>  | 40W (USA Model)<br>32W (PX Model)   | <b>S/N Ratio:</b>       | 55 dB with Sony SLH tape  |
| <b>Tape Speed:</b>         | 19 cm/s (7½ ips), 9.5 cm/s (3¾ ips)   | <b>Inputs:</b>          | Microphone inputs ..... 4<br>Sensitivity 0.2 mV (-72 dB)<br>Accept low impedance microphones  |
| <b>Recording Time:</b>     | 45 min. at 19 cm/s (7½ ips)<br>quadrphonic recording with 1,800<br>ft tape  |                         | Line inputs ..... 4<br>Sensitivity 0.06 V (-22 dB)<br>Impedance 100 kΩ  |
| <b>Reels:</b>              | 17.8 cm (7 inches) or smaller   | <b>Outputs:</b>         | Line outputs ..... 4<br>Output level 0.775 V (0 dB) at load<br>impedance 100 kΩ with line output<br>volume control set to MAX<br>Suitable load impedance higher than<br>10 kΩ |
| <b>Recording System:</b>   | 4-track quadrphonic, stereo and<br>mono system  |                         | Headphone outputs ..... 2<br>Accept an 8Ω stereo headphones   |
| <b>Frequency Response:</b> | With Sony SLH tape<br>20 ~ 30,000 Hz at 19 cm/s (7½ ips)<br>20 ~ 23,000 Hz (+3 dB) at 19 cm/s<br>(7½ ips)<br>30 ~ 19,000 Hz at 9.5 cm/s (3¾ ips)<br>With standard tape<br>20 ~ 25,000 Hz at 19 cm/s (7½ ips)<br>30 ~ 17,000 Hz at 9.5 cm/s (3¾ ips) | <b>Dimensions:</b>      | 422 (w) x 505 (h) x 220 (d) mm<br>16½ (w) x 19¾ (h) x 8¾ (d) inches   |
| <b>Distortion:</b>         | 1.2 %   | <b>Weight:</b>          | 14.5 kg (31 lb 14 oz)   |

**SONY**  
**SERVICE MANUAL**

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*When ordering replacement parts, use PART NUMBERS listed in Parts Lists or shown in EXPLODED VIEWS.*

*Parts List reference numbers should not be used.*

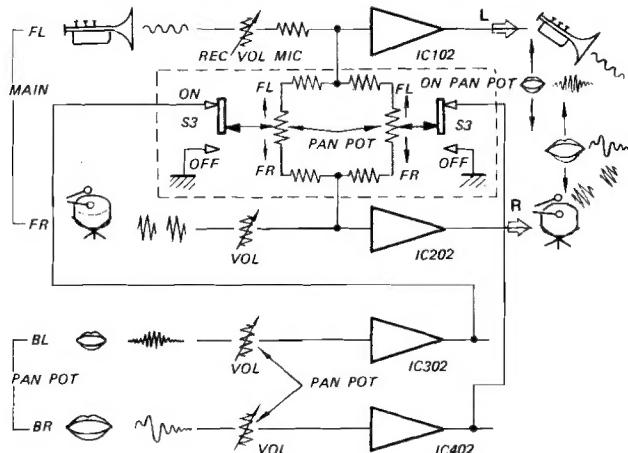
**FL: FRONT L-CH**  
**FR: FRONT R-CH**  
**BL: BACK L-CH**  
**BR: BACK R-CH**

## SECTION 1

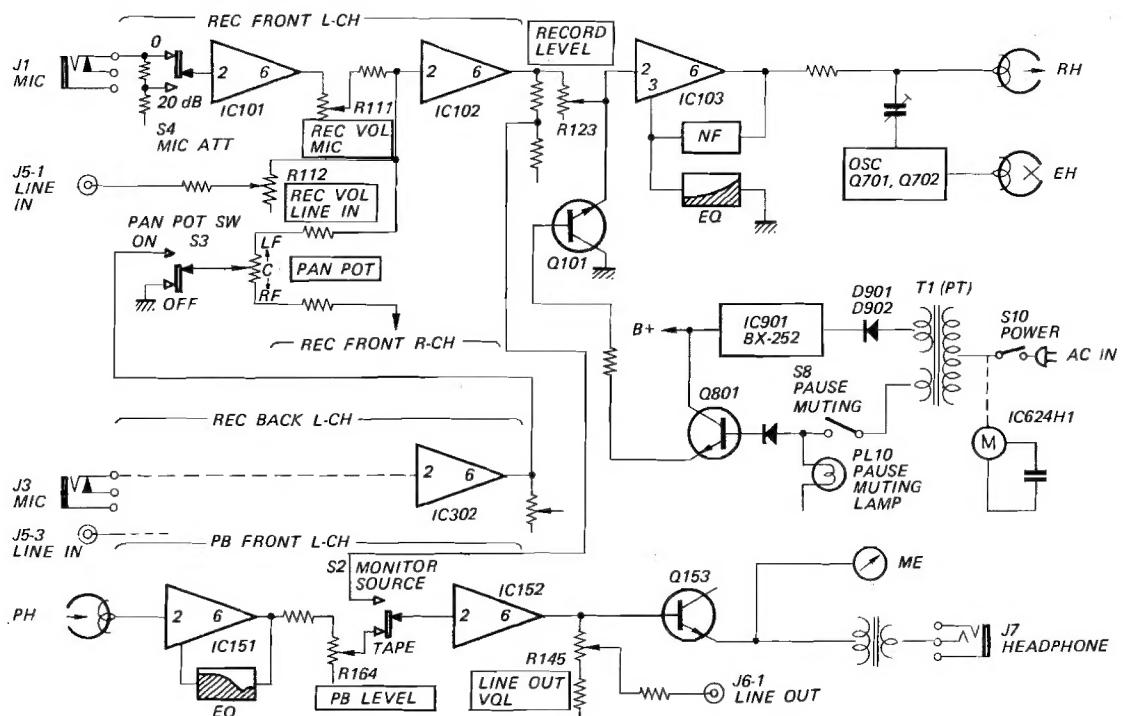
### OUTLINE

#### 1-1. PAN POT (Panoramic Potentiometer)

With PAN POT switch turned ON, the BACK channels are mixed into the FRONT channels to reproduce the two-channel stereo sounds and PAN POT controls can shift a sound image on a reproduced stereo sound field. The two FRONT channels are used for reproducing a stereo sound field and the two BACK channels for reproducing a sound image and shifting it.

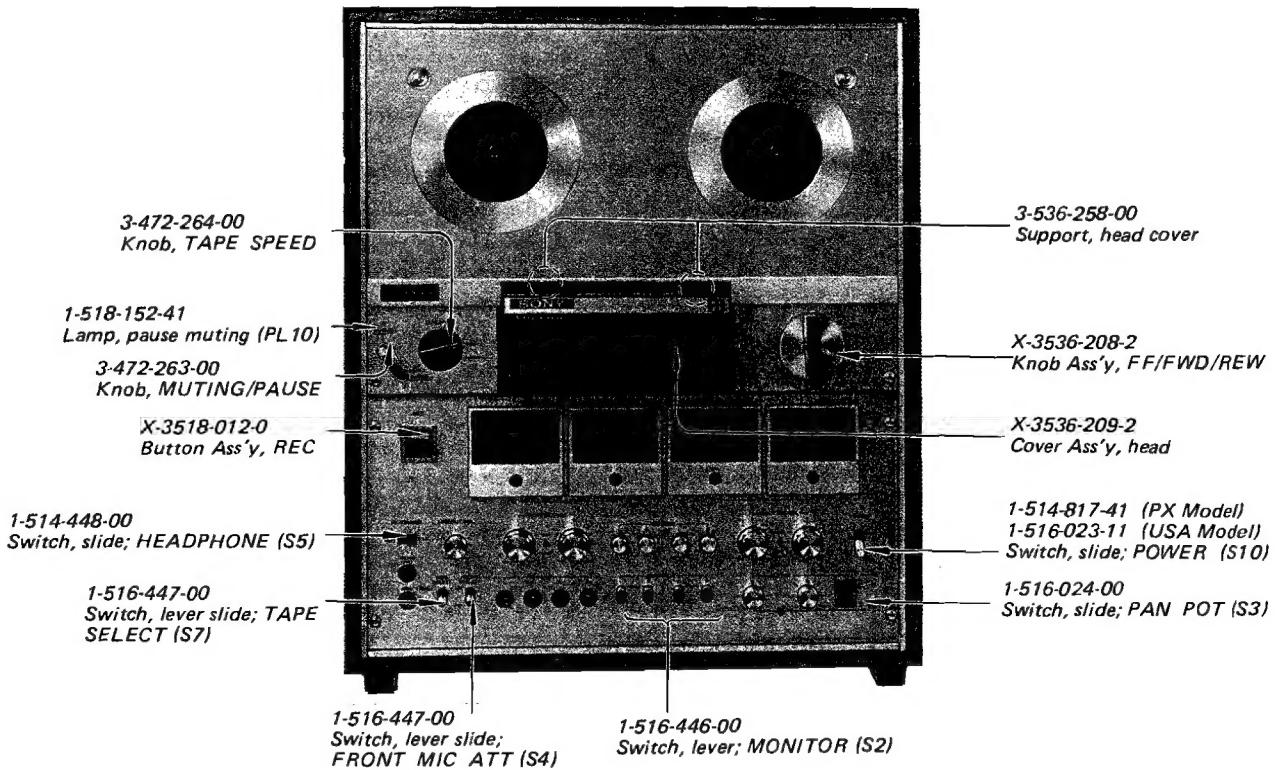


#### 1-3. BLOCK DIAGRAM

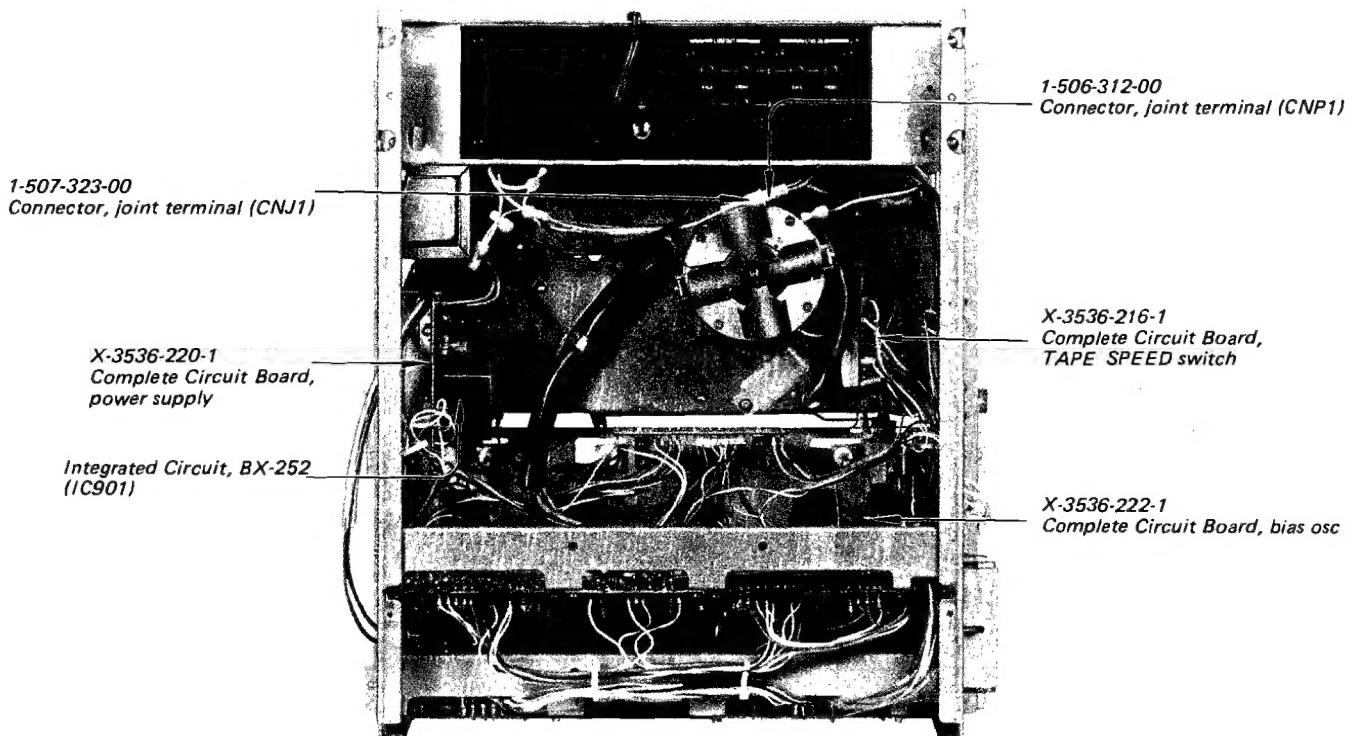


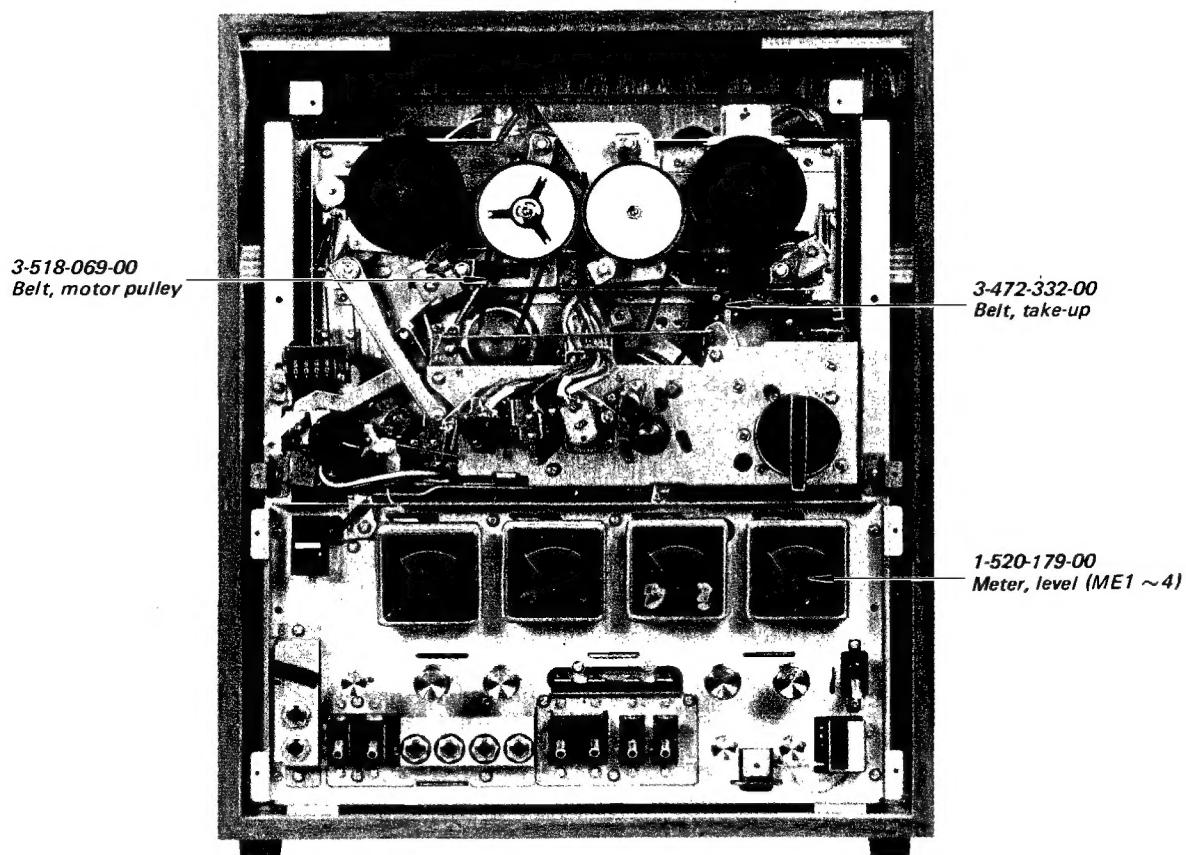
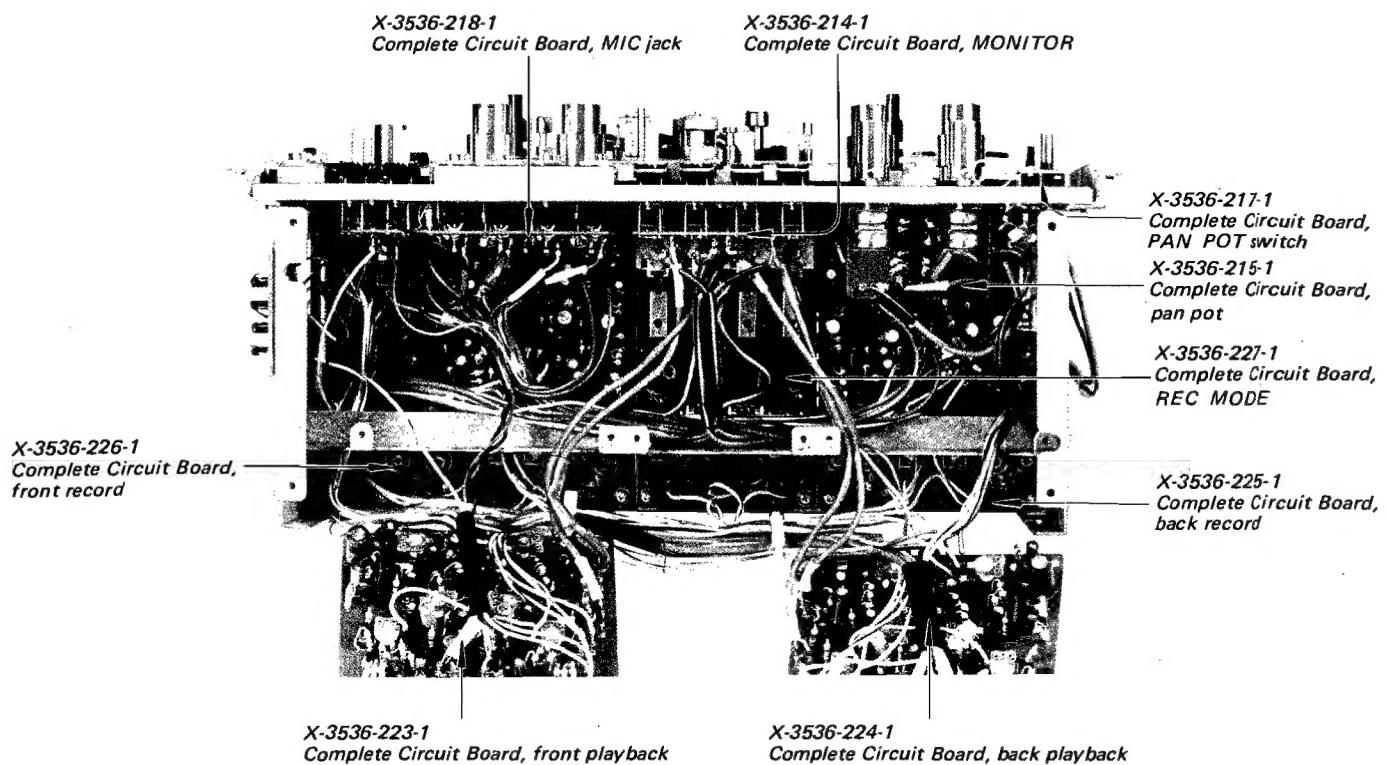
| Ref. No. | Switch       | Mode |
|----------|--------------|------|
| S2       | MONITOR      | TAPE |
| S3       | PAN POT      | OFF  |
| S4       | MIC ATT      | 0 dB |
| S8       | PAUSE MUTING | OFF  |

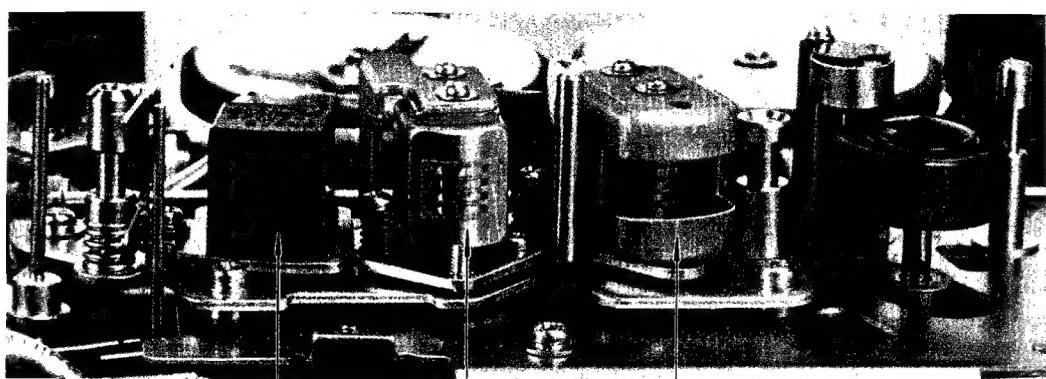
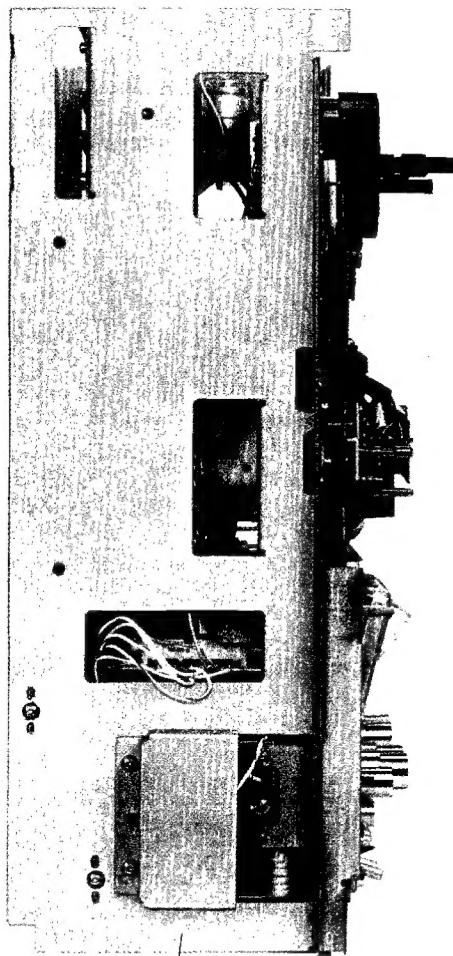
1-4. EXTERNAL VIEW



1-5. INTERNAL VIEWS







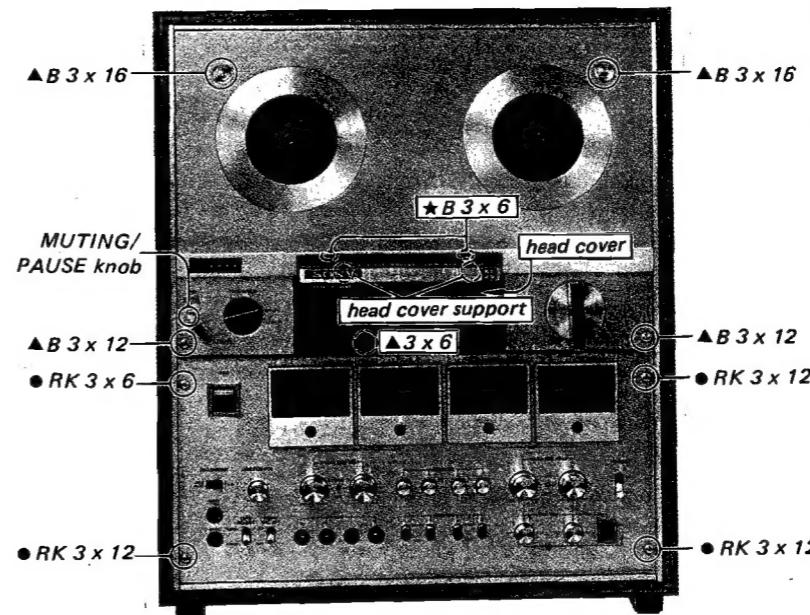
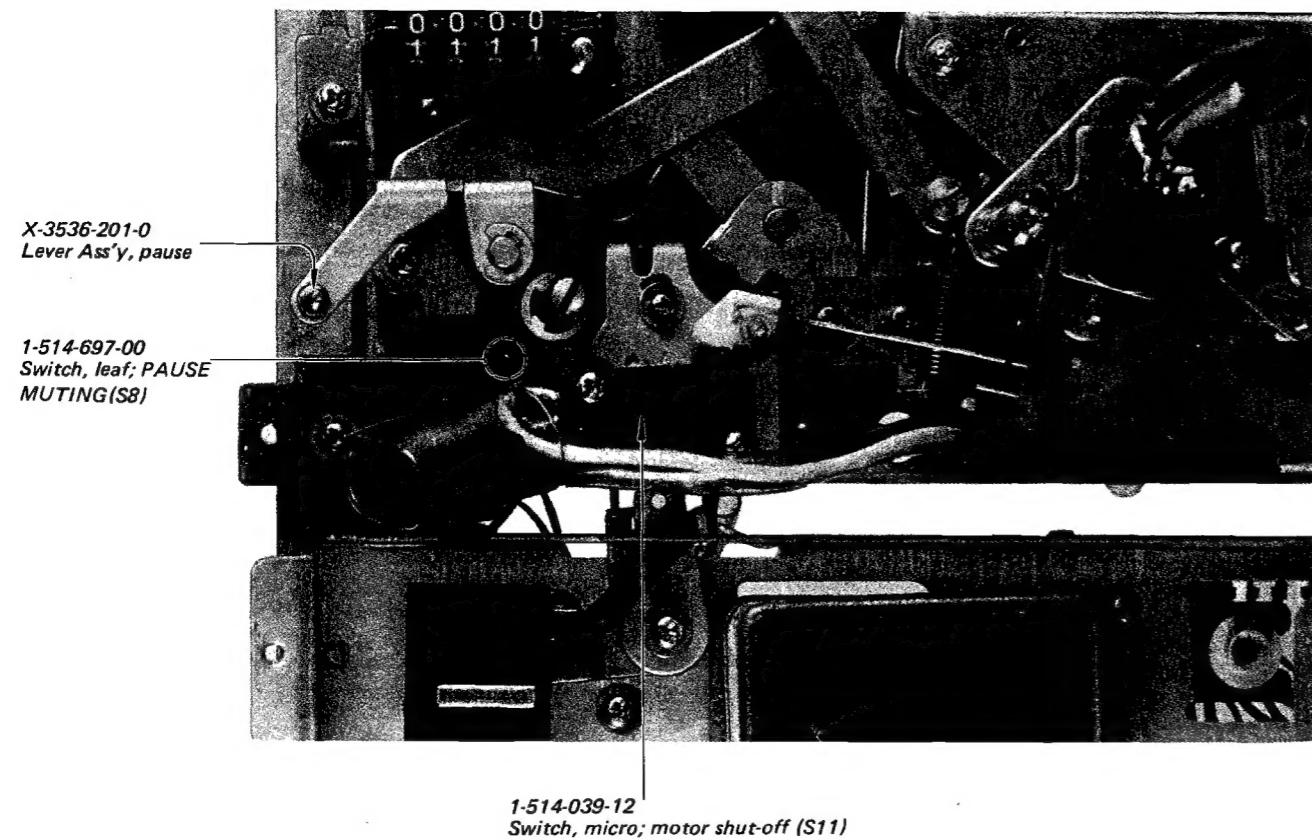
8-825-527-00  
Head, erase  
EF137-2904H

8-824-729-40  
Head, record  
RP138-2904

8-829-342-40  
Head, playback  
PP138-4204

## SECTION 2

### DISASSEMBLY



#### 2-1. AMP PANEL REMOVAL

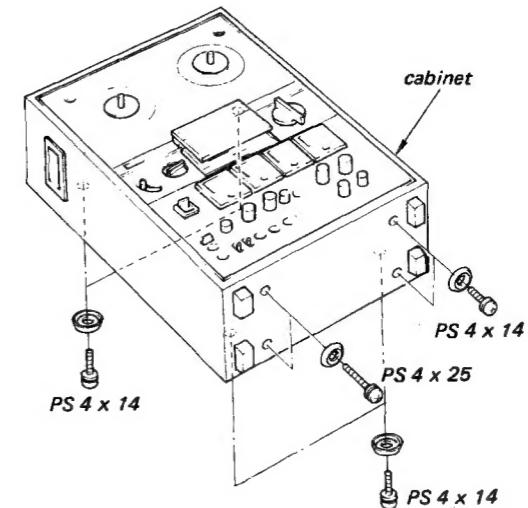
Remove four screws indicated by ▲.

#### 2-2. REEL PANEL REMOVAL

- 1) Remove two screws indicated by ★ and remove head cover.
- 2) Remove two head cover supports.
- 3) Remove MUTING/PAUSE knob by turning it counterclockwise.
- 4) Remove five screws indicated by ▲.

#### 2-3. CABINET REMOVAL

Remove eight screws.



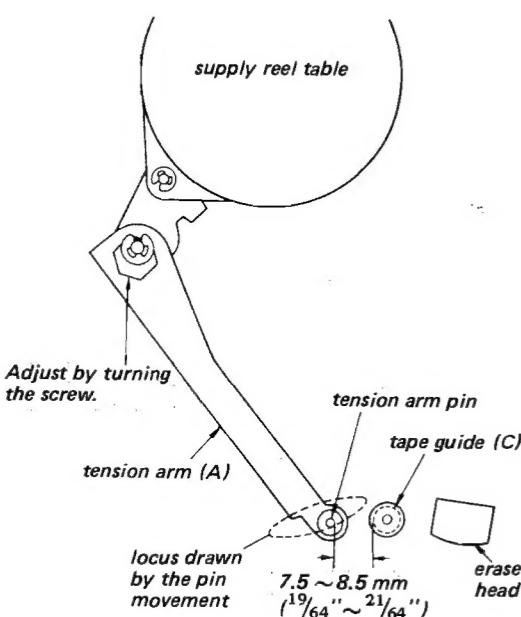
## SECTION 3

## ADJUSTMENTS

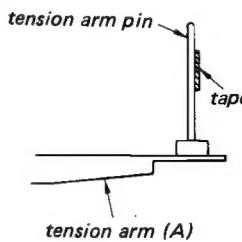
## 3-1. MECHANICAL ADJUSTMENTS

Tension Arm (A) Adjustment  
— playback mode —

Perform this adjustment after turning supply reel table counterclockwise by hand.



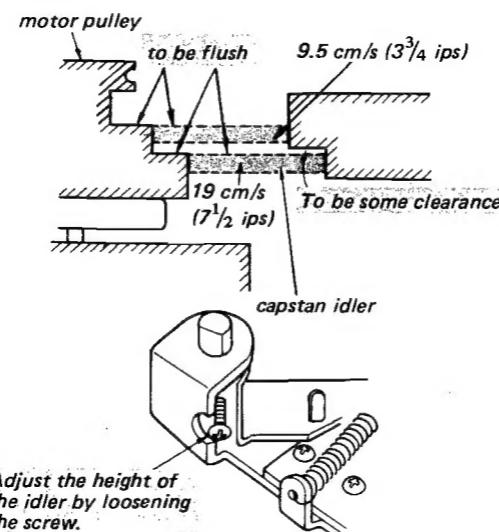
**Note:** Ensure that the tape uniformly comes in contact with the tension arm pin at the beginning and end of the tape. (If necessary, adjust by bending tension arm pin.)



## Capstan Idler Adjustment

Perform this adjustment after motor pulley height check (See Page 12).

## — playback mode —



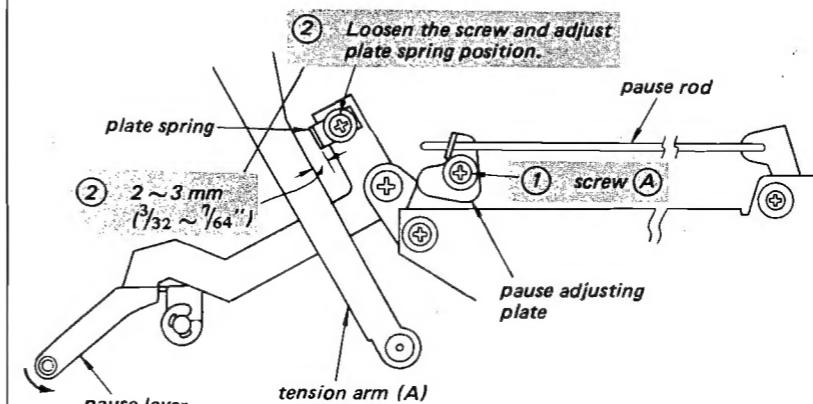
**Note:**

1. Perform this adjustment for both vertical and horizontal positions.
2. After the adjustment, apply locking compound to the screw.
3. Make sure that capstan idler does not contact motor pulley and flywheel in stop mode.

## Pause Mechanism Adjustment

## — playback mode —

① With pause lever pulled, adjust pause adjusting plate position by loosening screw (A) so that clearance between pinch roller and capstan is 0.5 ~ 1 mm (1/32").

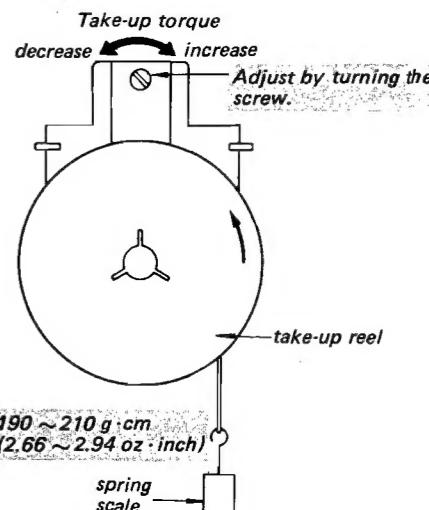


**Note:**

1. When pulling pause lever in stop mode, ensure that pause lever is not locked.
2. When pulling pause lever in playback mode, ensure that brake operates.

## Take-up Torque Adjustment

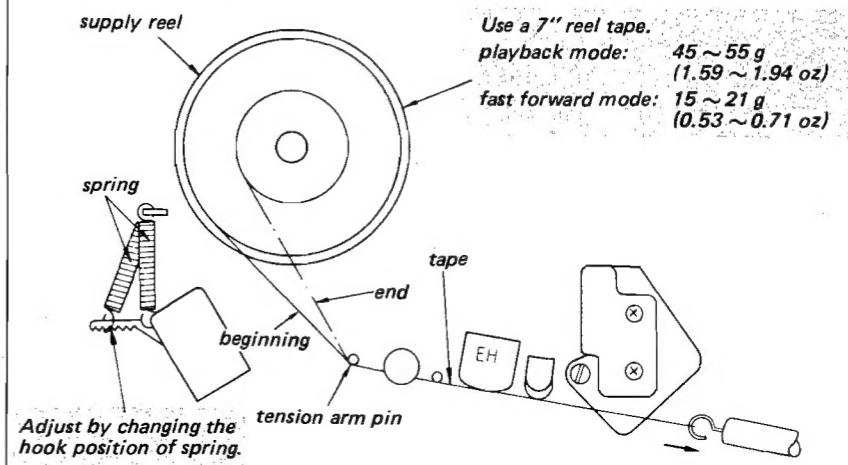
## — playback mode at 9.5 cm/s (3 3/4 ips) tape speed —



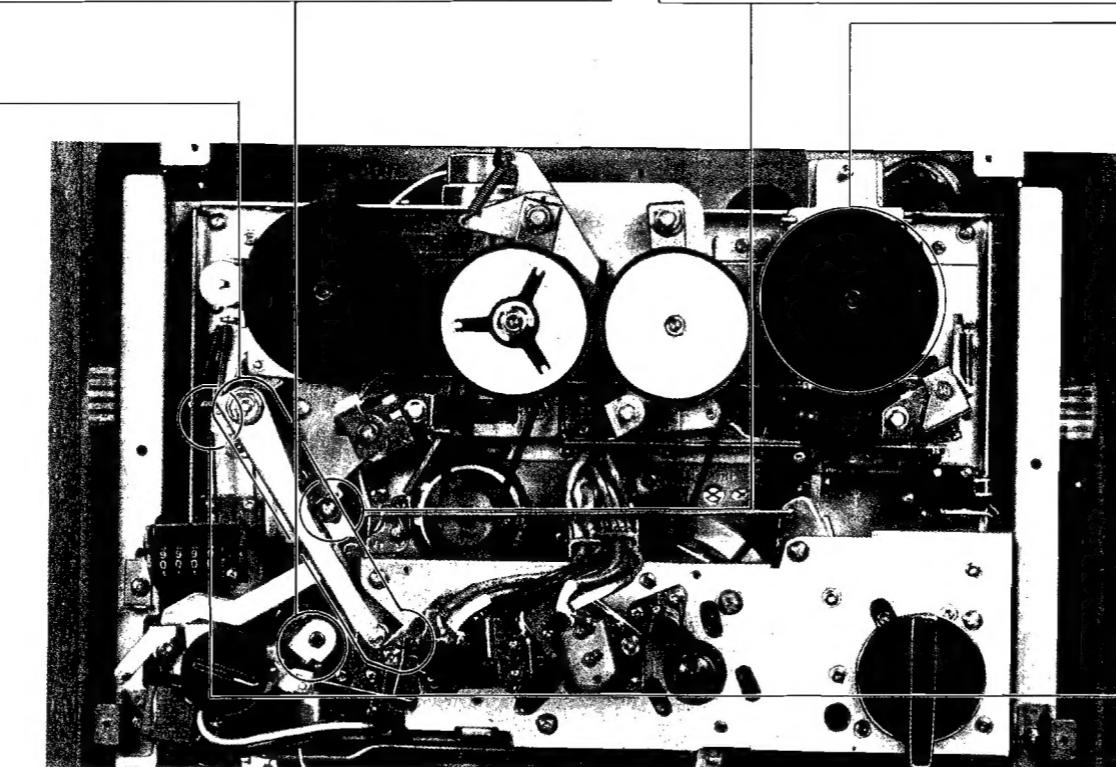
**Note:** After the adjustment, apply locking compound to the screw.

## Tension Arm (A) Back-tension Adjustment

Perform this adjustment after tension arm (A) adjustment (See Page 9).



**Note:** If the specified back tension is not obtained by the spring hook positioning, perform tension arm (A) adjustment (See Page 9).



**Reel Table Height Adjustment**  
— playback, rewind and fast forward mode —

Adjust by changing the washer so that the tape does not come in contact with the flange of the reel.

**Washer**

| Part No.     | Thickness (mm) |
|--------------|----------------|
| 3-701-443-01 | 0.13           |
| 3-701-443-11 | 0.25           |
| 3-701-443-21 | 0.50           |

**Note:** After the adjustment, perform back tension and take-up torque adjustments. (See Page 10).

**Fast Forward Pulley and Driving Idler Adjustment**  
— stop mode —

supply reel table  
driving idler  
fast forward pulley  
take-up reel table  
to be flush  
idler arm

If necessary, adjust by bending idler arm.

**Bias Timing Switch (S12) Position Adjustment**

pin  
playback mode  
stop mode  
bias timing switch (S12)  
microswitch bracket

**Note:** Ensure the following:

1. Bias timing switch is actuated in playback mode.
2. When changing the mode from record to stop slowly, REC button is released after the bias timing switch is released.

**Brake Adjustment (take-up reel table)**

- Brake Shoe Adjustment**  
— rewind mode —

take-up reel table  
0.5 ~ 1 mm (1/64 ~ 1/32 inch)  
Adjust by turning this screw.

- Brake Torque Adjustment**  
— stop mode —

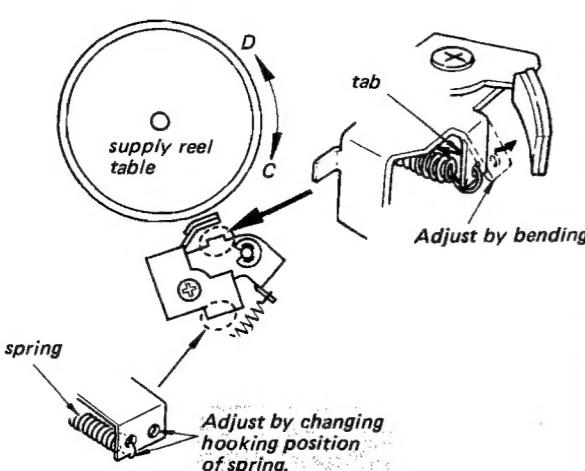
|                                   |             |                                      |
|-----------------------------------|-------------|--------------------------------------|
| take-up reel table braking torque | direction B | 350 ~ 450 g·cm (4.9 ~ 6.2 oz·inch)   |
|                                   | direction A | 1,300 ~ 1,700 g·cm (18 ~ 24 oz·inch) |

take-up reel table  
1 mm (1/64 inch)  
brake lever (A)  
strong  
weak  
direction B  
A  
B  
strong (Cut one turn of the spring off.)  
weak (Bend the tab inside.)  
direction A

**Brake Torque Adjustment (supply reel table)**  
— stop mode —

|                                  |             |                                      |
|----------------------------------|-------------|--------------------------------------|
| supply reel table braking torque | direction C | 150 ~ 250 g·cm (2.1 ~ 3.5 oz·inch)   |
|                                  | direction D | 1,300 ~ 1,700 g·cm (18 ~ 24 oz·inch) |

Adjustable for direction D only.



**Idler Arm Stroke Check**  
— playback mode at 9.5 cm/s (3 3/4 ips) tape speed —

0.3 ~ 0.5 mm (1/32 ~ 1/32 inch)  
idler  
tab

**Fast Forward and Rewind Torque Adjustments**  
— rewind and fast forward mode —

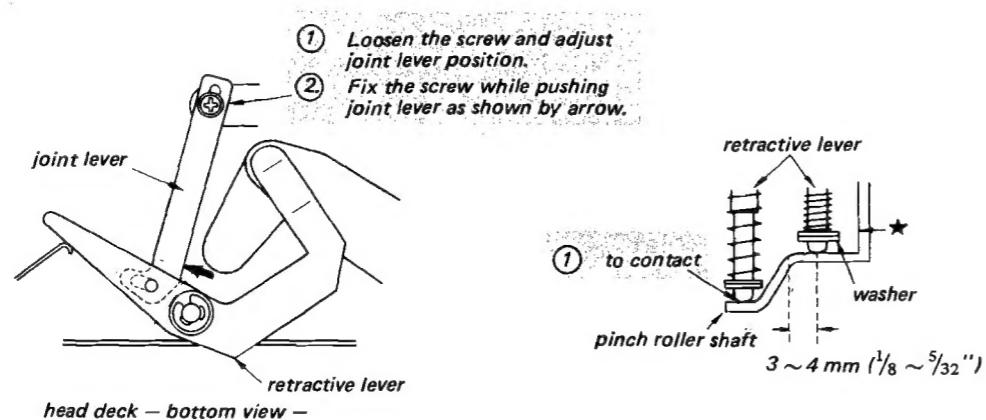
Adjust by positioning limiter spring  
fast forward idler  
driving idler  
rewind mode 900 ~ 1,200 g·cm (12.5 ~ 17 oz·inch)  
fast forward mode 850 ~ 1,150 g·cm (12 ~ 16 oz·inch)

**Note:** The torque should be measured just when driving idler stops rotating.

## Pinch Roller Stroke Adjustment

Remove head deck by removing four screws indicated by ▲ on Page 41.

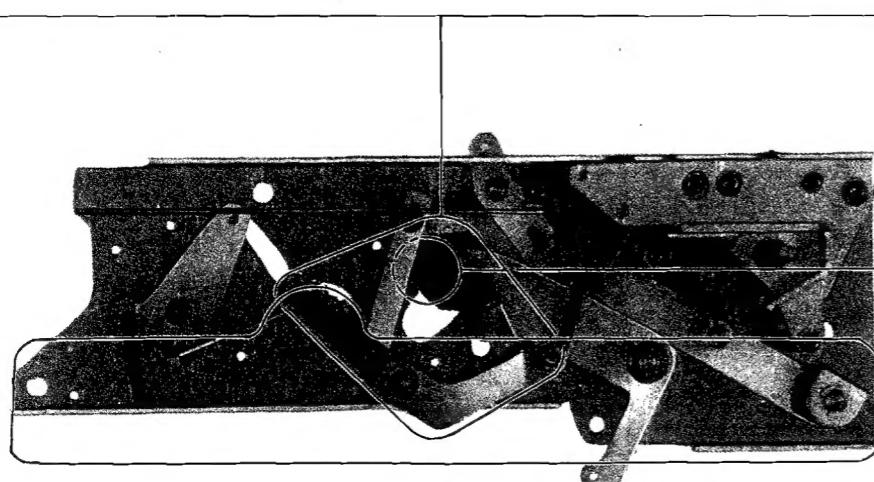
## — stop mode —



**Note:** 1. Put dummy capstan \* into capstan bearing and ensure that pinch roller shaft moves by 3 ~ 4 mm (1/8 ~ 5/32") on the retractive lever when changing the mode from stop to playback.

2. Ensure that washer of pinch roller shaft does not contact the part indicated by ★ when changing the mode from playback to fast forward slowly.
3. Apply locking compound to the screw.

\* Dummy Capstan (capstan shaft)  
 Prepare a flywheel ass'y (X-3472-003-0) and remove capstan shaft from it by patting the head of the capstan shaft with the hammer, taking care not to bend the shaft.

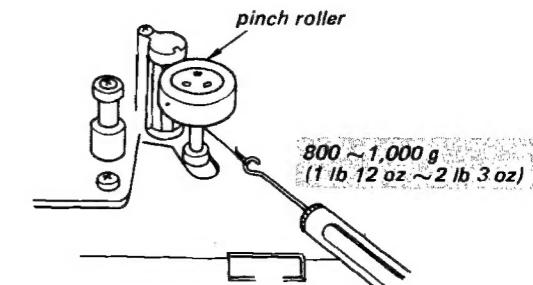
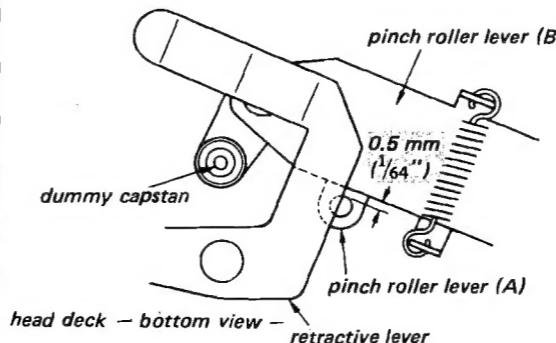


Bottom view of head deck

## Pinch Roller Pressure Check

1. Put dummy capstan \* into capstan bearing and ensure the following.

2. Measure the pressure.  
 — playback mode —



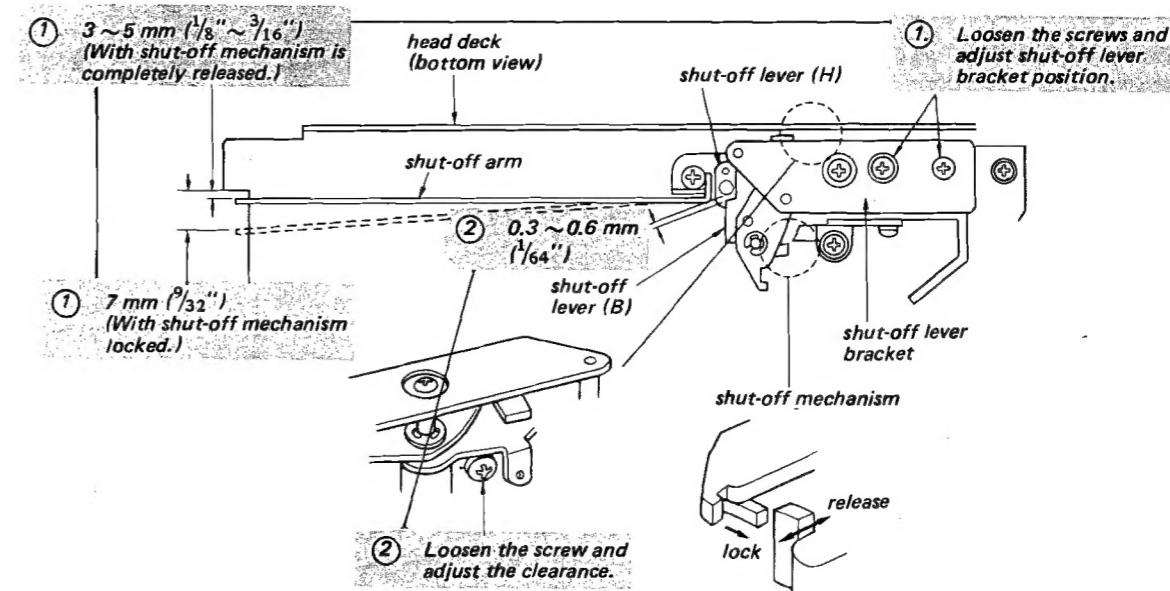
**Note:** The pressure should be measured just when the pinch roller releases from capstan.

\* Dummy capstan (capstan shaft)

Prepare a flywheel ass'y (X-3472-003-0) and remove capstan shaft from it by patting the head of the capstan shaft with the hammer, taking care not to bend the shaft.

## Shut-off Mechanism Adjustment

## — stop mode —



**Note:** After the adjustment, apply locking compound to the screws.

## 3-2. ELECTRICAL ADJUSTMENTS

## PRECAUTION

1. Clean the following parts with alcohol moistened swab:
  - record head
  - playback head
  - erase head
  - capstan
  - pinch roller
2. Demagnetize the record head and the playback head with a head demagnetizer. Do not use a magnetized screwdriver for adjustments.
3. The adjustments should be performed in the order arranged in the service manual.
4. The adjustments and the measurements should be performed with rated power supply voltage, unless otherwise specified.
5. After the adjustments, apply locking compound to the adjusted parts.

## Test Equipment/Tools Required:

audio oscillator (af osc)  
 VTVM  
 digital frequency counter  
 speed checker (SONY LFM-30)  
 attenuator (600  $\Omega$ )  
 $\frac{1}{4}$  W resistors, 600  $\Omega$ , 10 k $\Omega$ , 100 k $\Omega$   
 blank tape { SONY SLH-S1 (SPECIAL)  
 { SONY NPS-1 (NORMAL)  
 SONY test tapes:  
 J-9-F1  
 J-19-F2  
 SPC-47

## Standard Levels:

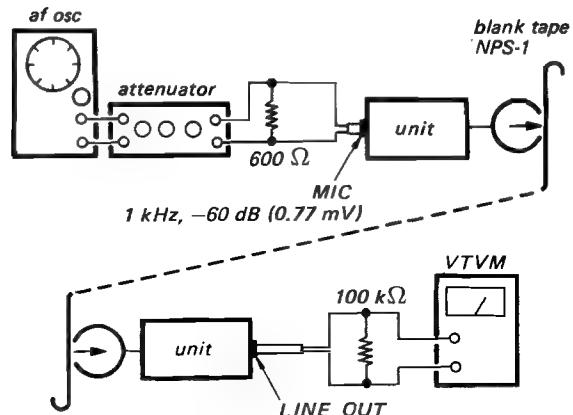
| Input    | Impedance      | Signal level     |
|----------|----------------|------------------|
| MIC      | 600 $\Omega$   | -60 dB (0.77 mV) |
| LINE IN  | 10 k $\Omega$  | -10 dB (0.25 V)  |
| Output   | Load Impedance | Signal level     |
| LINE OUT | 100 k $\Omega$ | 0 dB (0.775 V)   |

## Normal REC VOL Control Position:

## REC VOL (MIC)

TAPE SPEED switch: 19 cm/s  
 TAPE SELECT switch: NORMAL  
 LINE OUT VOL control: MAX  
 REC VOL (LINE): MIN  
 FRONT MIC ATT switch: 0 dB  
 PAN POT switch: OFF  
 REC MODE buttons: pressed  
 MONITOR switch: TAPE

Mode: record and simultaneous playback

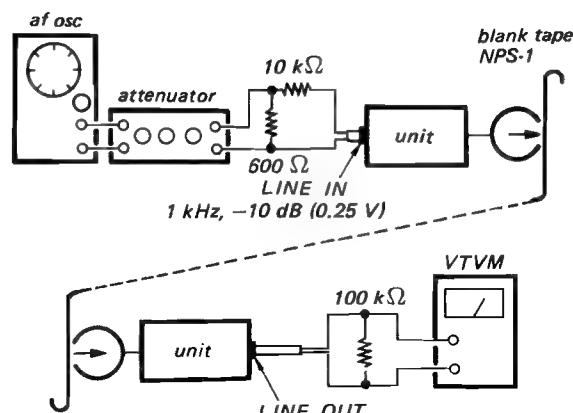


Turn REC VOL (MIC) control for 0 dB (0.775 V) VTVM reading.

## REC VOL (LINE)

TAPE SPEED switch: 19 cm/s  
 TAPE SELECT switch: NORMAL  
 LINE OUT VOL control: MAX  
 REC VOL (MIC): MIN  
 PAN POT switch: OFF  
 REC MODE buttons: pressed  
 MONITOR switch: TAPE

Mode: record and simultaneous playback



Turn REC VOL (LINE) control for 0 dB (0.775 V) VTVM reading.

## 1. Tape Path Adjustment and Head Height Rough Adjustment

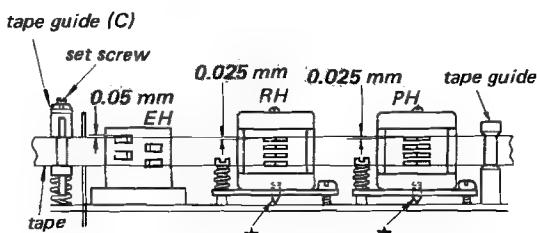
### Procedure:

#### A) Tape Path Adjustment

1. Loosen the set screw.
2. Adjust tape guide (C) so that upper edge of the tape is aligned on upper edge of the erase head core.
3. Turn tape guide (C) 35° clockwise.
4. Fix the set screw.

#### B) Head Rough Height Adjustments

1. Adjust the screws indicated by ★ by turning alternately in the same direction so that upper edges of the erase, record and the playback heads are aligned on the upper edge of the tape.
2. Turn the screws indicated by ★ 15° clockwise.



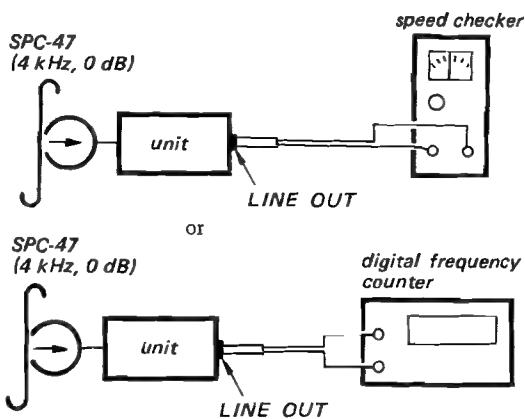
## 2. Tape Speed Adjustment

### Settings:

|                       |          |
|-----------------------|----------|
| TAPE SPEED switch:    | 19 cm/s  |
| TAPE SELECT switch:   | NORMAL   |
| LINE OUT VOL control: | MAX      |
| MONITOR switch:       | TAPE     |
| PAN POT switch:       | OFF      |
| REC MODE buttons:     | released |

### Procedure:

Mode: playback

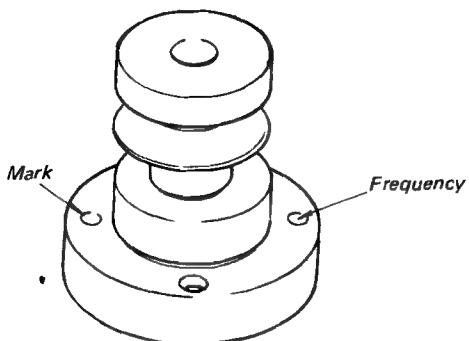


### Specification:

| speed checker | digital frequency counter |
|---------------|---------------------------|
| -1.5 ~ +1.5 % | 3940 ~ 4060               |

If necessary, replace motor pulley.

### Motor Pulley



| Part No.     | Mark | Speed  |
|--------------|------|--------|
| 3-518-068-61 | +2   | faster |
| 3-518-068-51 | +1   |        |
| 3-518-068-41 | +0.5 |        |
| 3-518-068-01 | 0    |        |
| 3-518-068-11 | -0.5 |        |
| 3-518-068-21 | -1   |        |
| 3-518-068-31 | -2   | slower |

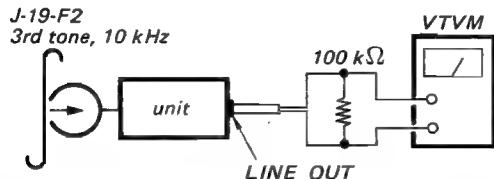
### 3. Playback Head Azimuth Adjustment

#### Settings:

TAPE SPEED switch: 19 cm/s  
 TAPE SELECT switch: NORMAL  
 LINE OUT VOL control: MAX  
 MONITOR switch: TAPE  
 PAN POT switch: OFF  
 REC MODE buttons: released

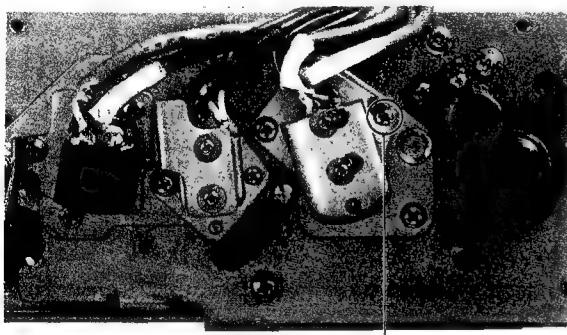
#### Procedure:

Mode: playback



Adjust the azimuth adjusting screw for the highest VTVM reading.

#### Adjustment Location:



azimuth adjusting screw

**Note:**

1. Several peaks may appear, take the highest.
2. If the highest peak readings for all the channels cannot be obtained at the same screw position, take the mid between the both extreme positions of the screws. At that time, ensure that the difference between the maximum and the minimum readings is not more than 1 dB on the VTVM.
3. If you turn the azimuth adjusting screw more than one turn, perform tape path adjustment (See Page 16).
4. When touching the supply reel table lightly, ensure that VTVM reading is not increased more than 1 dB.

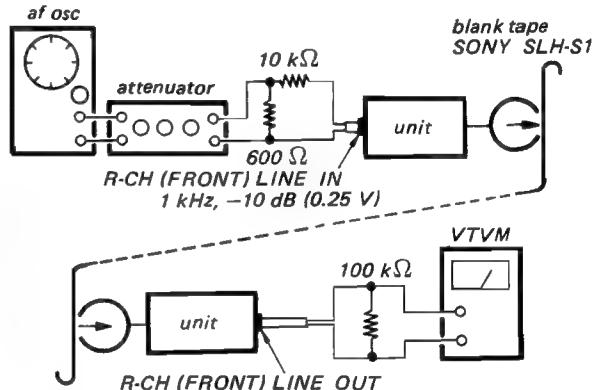
### 4. Record Head Height Adjustment

#### Settings:

TAPE SPEED switch: 19 cm/s  
 TAPE SELECT switch: SPECIAL  
 LINE OUT VOL control: MAX  
 PAN POT switch: OFF  
 REC MODE buttons: pressed  
 MONITOR switch: TAPE  
 REC VOL (LINE) control: normal position  
 (See Page 15.)

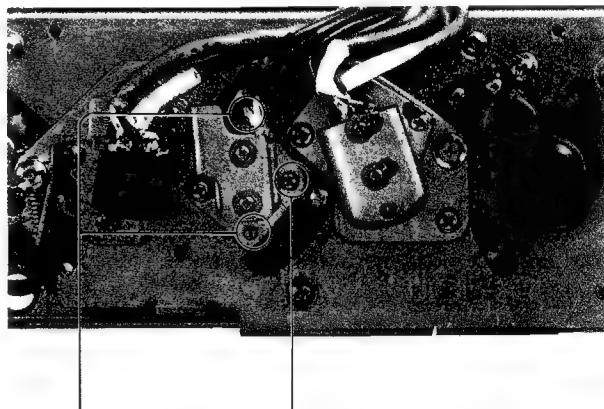
#### Procedure:

Mode: record and simultaneous playback



Adjust the three screws for the maximum R-CH (FRONT) VTVM reading.

#### Adjustment Location:



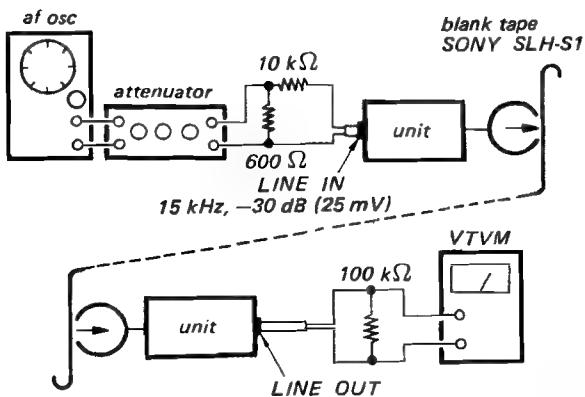
## 5. Record Head Azimuth Adjustment

## Settings:

|                         |                                   |
|-------------------------|-----------------------------------|
| TAPE SPEED switch:      | 19 cm/s                           |
| TAPE SELECT switch:     | SPECIAL                           |
| LINE OUT VOL control:   | MAX                               |
| PAN POT switch:         | OFF                               |
| REC MODE buttons:       | pressed                           |
| MONITOR switch:         | TAPE                              |
| REC VOL (LINE) control: | normal position<br>(See Page 15.) |

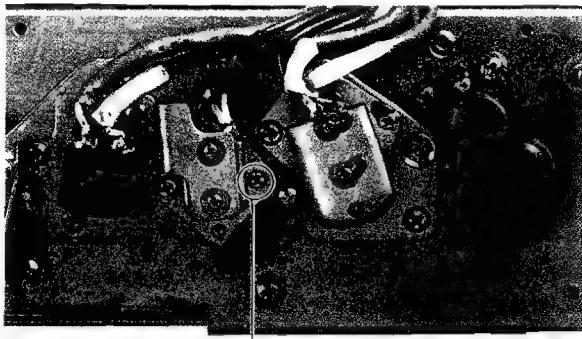
### **Procedure:**

Mode: record and simultaneous playback



Adjust the azimuth adjusting screw for the highest VTVM reading.

**Adjustment Location:**



*azimuth adjusting screw*

**Note:**

1. If the highest peak reading for all the channels cannot be obtained at the same screw position, take the mid between the both extreme positions of the screws and the difference between each extreme peak level and the adjusted output level should be within 1 dB difference. If the difference is more than 1 dB, change the record head.
2. If you turn the azimuth adjusting screw more than one turn, perform record head height adjustment (See Page 16).

## 6. Phasing Adjustment

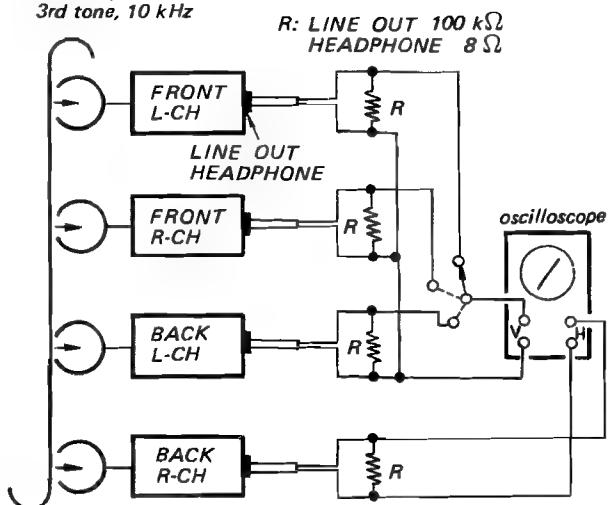
## Settings:

TAPE SPEED switch: 19 cm/s  
 TAPE SELECT switch: NORMAL  
 LINE OUT VOL control: MAX  
 MONITOR switch: TAPE  
 PAN POT switch: OFF  
 REC MODE buttons: released

### Procedure:

Mode: playback

J-19-F2  
1st tone, 400 Hz  
3rd tone, 10 kHz



Check the following:

| J-19-F2              | On the oscilloscope  |
|----------------------|--|
| 2nd tone<br>(400 Hz) | <br>in phase  |
| 3rd tone<br>(10 kHz) |  ~ <br>in phase  ±90° |

If necessary, finely adjust the playback head azimuth adjusting screw. (See Page 17.)

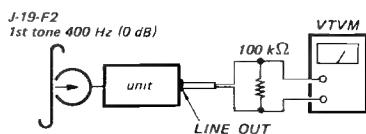
## 7. Playback Output Level Adjustment

### Settings:

TAPE SPEED switch: 19 cm/s  
 TAPE SELECT switch: NORMAL  
 LINE OUT VOL control: MAX  
 MONITOR switch: TAPE  
 PAN POT switch: OFF  
 REC MODE buttons: released

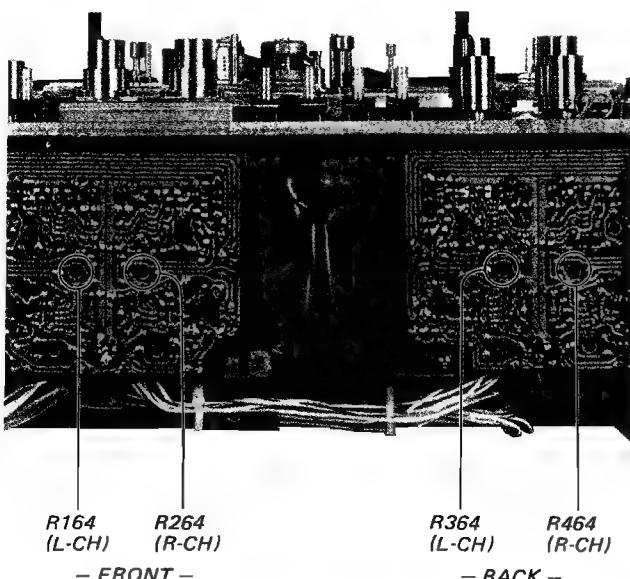
### Procedure:

Mode: playback



Adjust R164, 264, 364, 464 for 0 dB (0.775 V) VTVM reading.

### Adjustment Location:



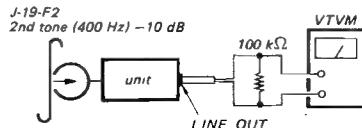
## 8. Playback Equalizer Adjustment

### Settings:

TAPE SPEED switch: 19 cm/s and 9.5 cm/s  
 TAPE SELECT switch: NORMAL  
 LINE OUT VOL control: MAX  
 MONITOR switch: TAPE  
 PAN POT switch: OFF  
 REC MODE buttons: released

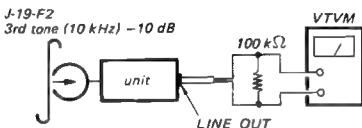
### Procedure:

1. Mode: playback [TAPE SPEED switch: 19 cm/s (7 1/2 ips)]



Make sure that VTVM reading is -10 dB (0.25 V).

2. Mode: playback



Adjust the resistors R157, 257, 357, 457 for -10.5 dB (0.23 V) VTVM reading.

3. Play back test tape J-19-F2 and ensure that each tone output level deviation against 2nd tone is as follows.

| J-19-F2                                | Tone           | 3           | 4             | 5           | 6         | 7  |
|--|----------------|-------------|---------------|-------------|-----------|----|
|  | Frequency (Hz) | 10 kHz      | 12.5 k        | 7 k         | 80        | 40 |
| Level Deviation from 2nd tone (400 Hz) | -0.5 ± 1 dB    | -0.5 ± 2 dB | -0.5 ± 1.5 dB | -2 ± 1.5 dB | +2 ± 2 dB |    |

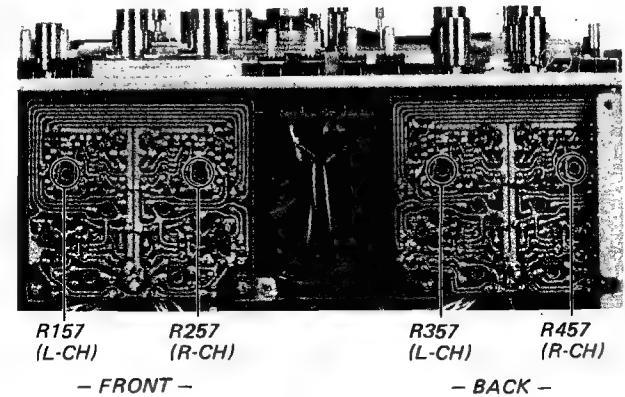
4. Play back test tape J-19-F1 and ensure that each tone output level deviation against 3rd tone is as follows.

[TAPE SPEED switch: 9.5 cm/s (3 1/2 ips)]

| J-9-F1                                 | Tone           | 4           | 5             | 6           | 7  |
|--|----------------|-------------|---------------|-------------|----|
|  | Frequency (Hz) | 5 k         | 3 k           | 200         | 80 |
| Level Deviation from 3rd tone (400 Hz) | 1 ± 2 dB       | -1 ± 1.5 dB | +0.5 ± 1.5 dB | +1.5 ± 2 dB |    |

**Note:** When this adjustment changes the playback level, readjust the playback level.

### Adjustment Location:



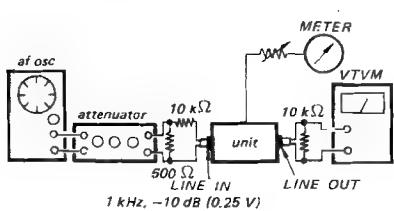
**9. Level Meter Calibration**

**Settings:**

TAPE SPEED switch: 19 cm/s  
 TAPE SELECT switch: NORMAL  
 LINE OUT VOL control: MAX  
 MONITOR switch: TAPE  
 PAN POT switch: OFF  
 REC MODE buttons: pressed  
 REC VOL (LINE): normal position  
 (See Page 15.)

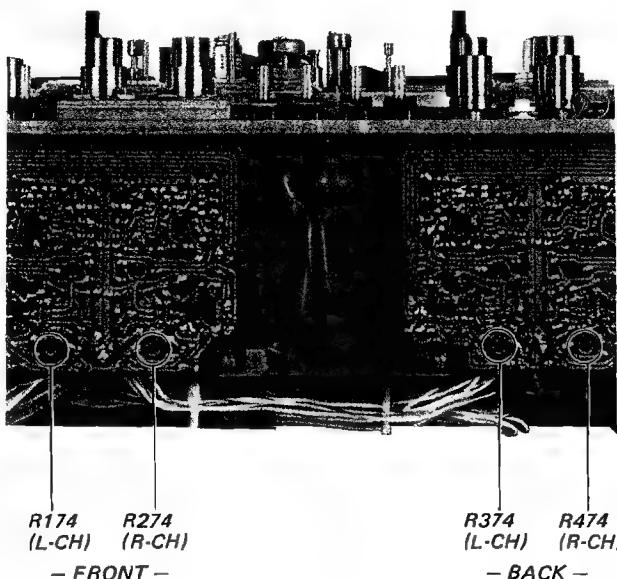
**Procedure:**

Mode: record



Adjust the resistors R174, 274, 374, 474 so that the pointer of level meter is at 0 VU on the scale.

**Adjustment Location:**



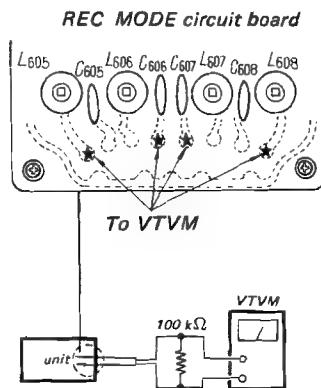
**10. Trap Coil Adjustment**

**Settings:**

TAPE SPEED switch: 19 cm/s  
 TAPE SELECT switch: NORMAL  
 LINE OUT VOL control: MAX  
 PAN POT switch: OFF  
 REC MODE buttons: pressed  
 REC VOL (MIC): MIN  
 REC VOL (LINE): MIN

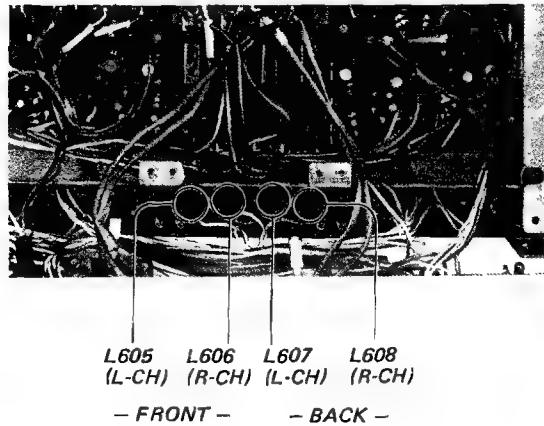
**Procedure:**

Mode: record



Adjust the trap coils L605, 606, 607, 608 for minimum VTVM reading.

**Adjustment Location:**



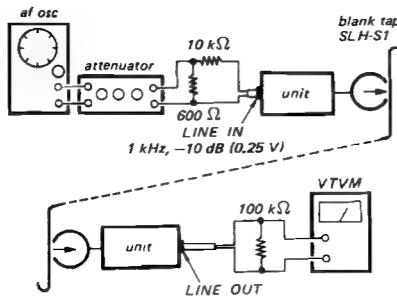
## 11. Record Bias Adjustment

## Settings:

TAPE SPEED switch: 19 cm/s  
 TAPE SELECT switch: SPECIAL  
 LINE OUT VOL control: MAX  
 MONITOR switch: TAPE  
 PAN POT switch: OFF  
 REC MODE buttons: pressed  
 REC VOL (LINE): normal position  
 (See Page 15.)

## Procedure:

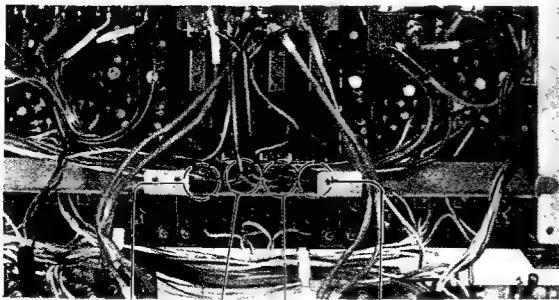
1. Mode: record and simultaneous playback



Adjust the trimmer capacitors C609, 610, 611, 612 for maximum VTVM reading.

2. Turn the trimmer capacitor clockwise for 0.5 dB below the maximum reading.

## Adjustment Location:



C609 (L-CH) C610 (R-CH) C611 (L-CH) C612 (R-CH)  
 - FRONT - - BACK -

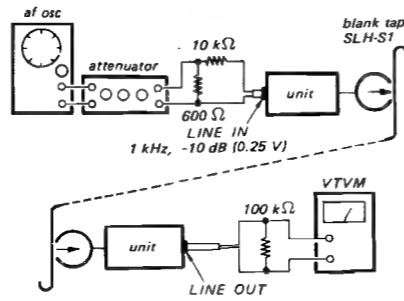
## 12. Record Level Adjustment

## Settings:

TAPE SPEED switch: 19 cm/s and 9.5 cm/s  
 TAPE SELECT switch: SPECIAL and NORMAL  
 LINE OUT VOL control: MAX  
 MONITOR switch: TAPE  
 PAN POT switch: OFF  
 REC MODE buttons: pressed  
 REC VOL (LINE): normal position  
 (See Page 15.)

## Procedure:

1. Mode: record and simultaneous playback  
 [TAPE SPEED switch: 19 cm/s (7 1/2 ips)]

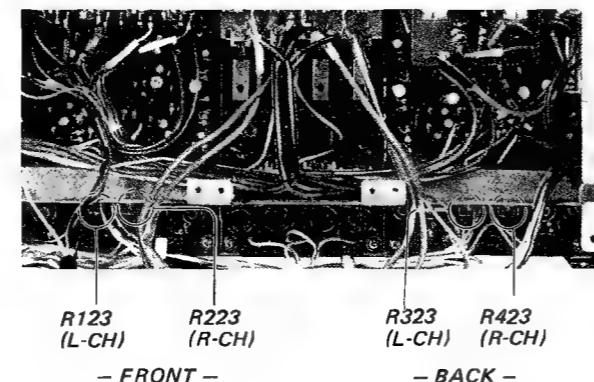


Adjust the resistors R123, 223, 323, 423 for 0 dB (0.775 V) VTVM reading.

| TAPE SPEED              | TAPE                             |                                  |
|-------------------------|----------------------------------|----------------------------------|
|                         | SPECIAL                          | NORMAL                           |
| 19 cm/s<br>(7 1/2 ips)  | 0 dB ± 1 dB<br>(0.69 ~ 0.87 V)   | * 0 dB ± 1 dB<br>(0.69 ~ 0.87 V) |
| 9.5 cm/s<br>(3 3/4 ips) | * 0 dB ± 2 dB<br>(0.62 ~ 0.97 V) | * 0 dB ± 2 dB<br>(0.62 ~ 0.97 V) |

\* check only

## Adjustment Location:



R123 (L-CH) R223 (R-CH) R323 (L-CH) R423 (R-CH)  
 - FRONT - - BACK -

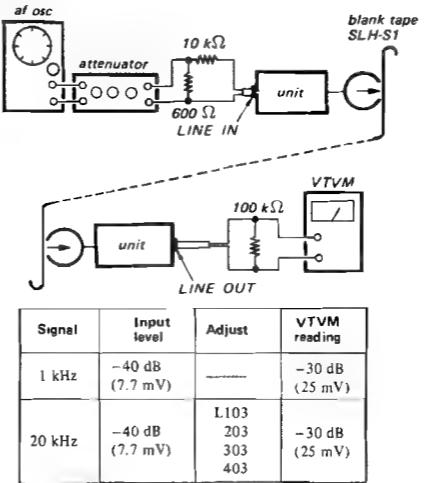
## 13. Record Equalizer Adjustment (SPECIAL)

## Settings:

TAPE SPEED switch: 19 cm/s and 9.5 cm/s  
 TAPE SELECT switch: SPECIAL  
 LINE OUT VOL control: MAX  
 MONITOR switch: TAPE  
 PAN POT switch: OFF  
 REC MODE buttons: pressed  
 REC VOL (LINE): normal position  
 (See Page 15.)

## Procedure:

1. Mode: record and simultaneous playback



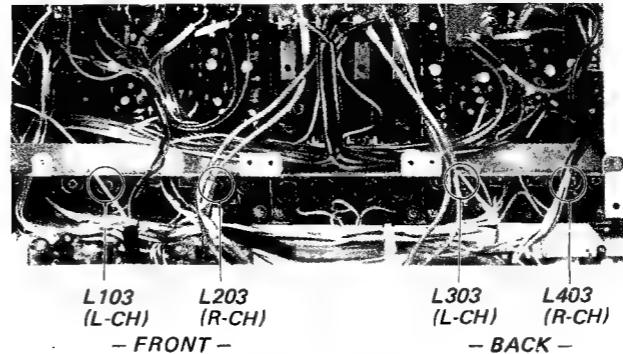
| Signal | Input level     | Adjust                    | VTVM reading   |
|--------|-----------------|---------------------------|----------------|
| 1 kHz  | -40 dB (7.7 mV) | —                         | -30 dB (25 mV) |
| 20 kHz | -40 dB (7.7 mV) | L103<br>203<br>303<br>403 | -30 dB (25 mV) |

2. Check the frequency response:

| Signal (input level -40 dB, 7.7 mV) | Output Level Deviation from 1 kHz signal |                      |
|-------------------------------------|--|----------------------|
| 19 cm/s (7 1/2 ips)                 | 19 cm/s (7 1/2 ips)                      | 9.5 cm/s (3 3/4 ips) |
| 30 Hz                               | ±3 dB                                    | ±3 dB                |
| 200 Hz                              | ±3 dB                                    | ±3 dB                |
| 6 kHz                               | ±3 dB                                    | ±3 dB                |
| 10 kHz                              | ±3 dB                                    | ±3 dB                |
| 15 kHz                              | ±3 dB                                    | ±3 dB                |
| 20 kHz                              | —  | ±3 dB                |
| 23 kHz                              | ±3 dB                                    | —                    |

Note: If necessary, readjust the record bias adjustment (See Page 21).

## Adjustment Location:



L103 (L-CH) L203 (R-CH) L303 (L-CH) L403 (R-CH)  
 - FRONT - - BACK -

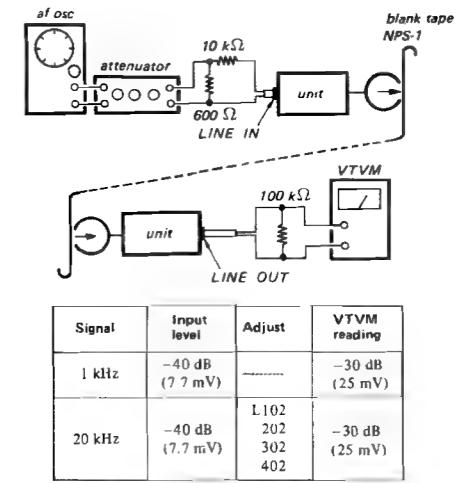
## 14. Record Equalizer Adjustment (NORMAL)

## Settings:

TAPE SPEED switch: 19 cm/s and 9.5 cm/s  
 TAPE SELECT switch: NORMAL  
 LINE OUT VOL control: MAX  
 MONITOR switch: TAPE  
 PAN POT switch: OFF  
 REC MODE buttons: pressed  
 REC VOL (LINE): normal position  
 (See Page 15.)

## Procedure:

1. Mode: record and simultaneous playback



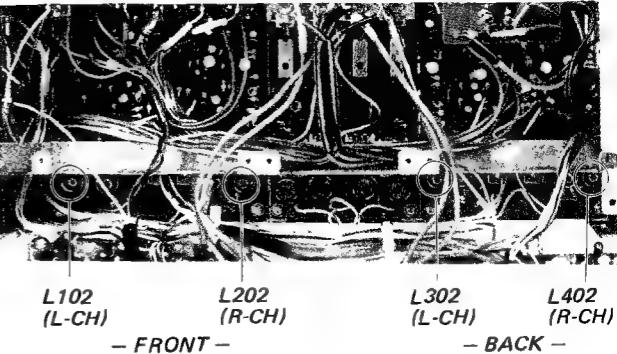
| Signal | Input level     | Adjust                    | VTVM reading   |
|--------|-----------------|---------------------------|----------------|
| 1 kHz  | -40 dB (7.7 mV) | —                         | -30 dB (25 mV) |
| 20 kHz | -40 dB (7.7 mV) | L102<br>202<br>302<br>402 | -30 dB (25 mV) |

2. Check the frequency response:

| Signal (input level -40 dB, 7.7 mV) | Output Level Deviation from 1 kHz signal |                      |
|-------------------------------------|--|----------------------|
| 19 cm/s (7 1/2 ips)                 | 19 cm/s (7 1/2 ips)                      | 9.5 cm/s (3 3/4 ips) |
| 30 Hz                               | ±3 dB                                    | ±3 dB                |
| 200 Hz                              | ±3 dB                                    | ±3 dB                |
| 6 kHz                               | ±3 dB                                    | ±3 dB                |
| 10 kHz                              | ±3 dB                                    | ±3 dB                |
| 15 kHz                              | ±3 dB                                    | ±3 dB                |
| 20 kHz                              | —  | ±3 dB                |
| 23 kHz                              | ±3 dB                                    | —                    |

Note: If necessary, readjust the record bias adjustment (See Page 21).

## Adjustment Location:



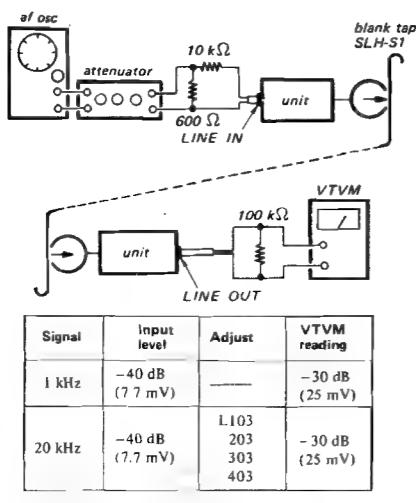
L102 (L-CH) L202 (R-CH) L302 (L-CH) L402 (R-CH)  
 - FRONT - - BACK -

**13. Record Equalizer Adjustment (SPECIAL)****Settings:**

TAPE SPEED switch: 19 cm/s and 9.5 cm/s  
 TAPE SELECT switch: SPECIAL  
 LINE OUT VOL control: MAX  
 MONITOR switch: TAPE  
 PAN POT switch: OFF  
 REC MODE buttons: pressed  
 REC VOL (LINE): normal position (See Page 15.)

**Procedure:**

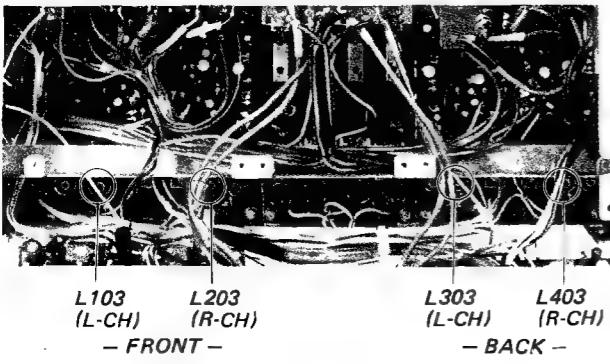
1. Mode: record and simultaneous playback



2. Check the frequency response:

| Signal (input level -40 dB, 7.7 mV) | Output Level Deviation from 1 kHz signal |                   |
|-------------------------------------|--|-------------------|
|                                     | 19 cm/s (7% ips)                         | 9.5 cm/s (3% ips) |
| 30 Hz                               | ±3 dB                                    | ±3 dB             |
| 200 Hz                              | ±3 dB                                    | +3 dB             |
| 6 kHz                               | ±3 dB                                    | ±3 dB             |
| 10 kHz                              | ±3 dB                                    | ±3 dB             |
| 15 kHz                              | ±3 dB                                    | ±3 dB             |
| 20 kHz                              | —  | ±3 dB             |
| 23 kHz                              | ±3 dB                                    | —                 |

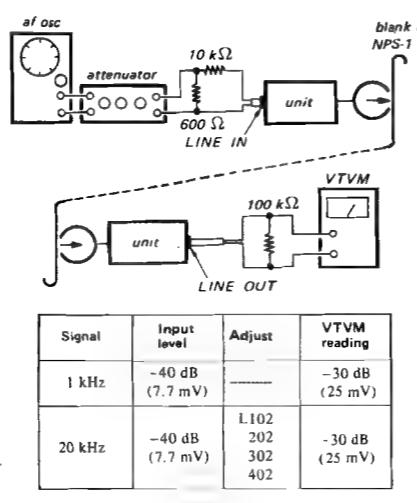
**Note:** If necessary, readjust the record bias adjustment (See Page 21).

**Adjustment Location:****14. Record Equalizer Adjustment (NORMAL)****Settings:**

TAPE SPEED switch: 19 cm/s and 9.5 cm/s  
 TAPE SELECT switch: NORMAL  
 LINE OUT VOL control: MAX  
 MONITOR switch: TAPE  
 PAN POT switch: OFF  
 REC MODE buttons: pressed  
 REC VOL (LINE): normal position (See Page 15.)

**Procedure:**

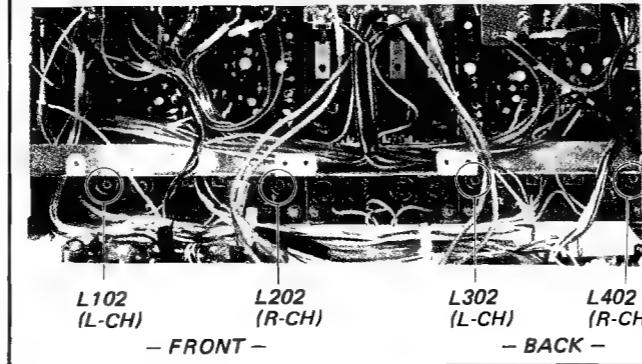
1. Mode: record and simultaneous playback



2. Check the frequency response:

| Signal (input level -40 dB, 7.7 mV) | Output Level Deviation from 1 kHz signal |                   |
|-------------------------------------|--|-------------------|
|                                     | 19 cm/s (7% ips)                         | 9.5 cm/s (3% ips) |
| 30 Hz                               | ±3 dB                                    | ±3 dB             |
| 200 Hz                              | ±3 dB                                    | ±3 dB             |
| 6 kHz                               | ±3 dB                                    | ±3 dB             |
| 10 kHz                              | ±3 dB                                    | ±3 dB             |
| 15 kHz                              | ±3 dB                                    | ±3 dB             |
| 20 kHz                              | —  | ±3 dB             |
| 23 kHz                              | ±3 dB                                    | —                 |

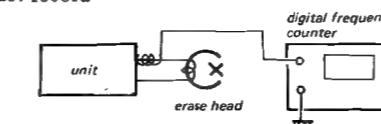
**Note:** If necessary, readjust the record bias adjustment (See Page 21).

**Adjustment Location:****15. Dummy Coil Adjustment****Settings:**

TAPE SPEED switch: 19 cm/s  
 TAPE SELECT switch: SPECIAL  
 LINE OUT VOL control: MAX  
 MONITOR switch: TAPE  
 PAN POT switch: OFF  
 REC MODE buttons: pressed

**Procedure:**

1. Mode: record



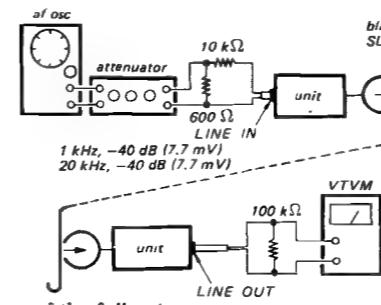
Memorize the counter reading.

| Release REC MODE buttons of the following channels. | Adjust the coils so that the frequency is the same as step 1 |
|---|--|
| FRONT L-CH  | L601   |
| FRONT R-CH  | L602   |
| BACK L-CH   | L603   |
| BACK R-CH   | L604   |

2. (1) Mode: 4-channel record and simultaneous playback

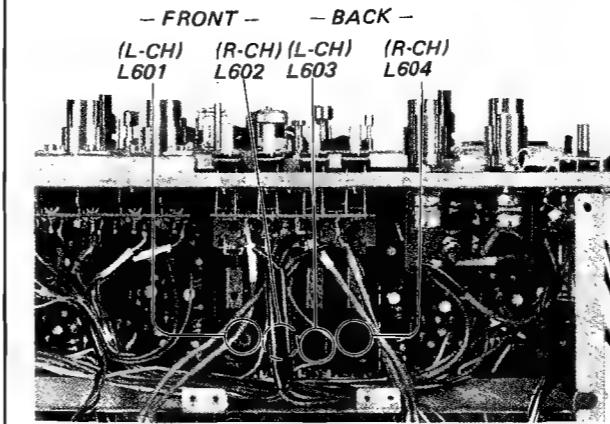
2. Mode: 2-channel record and simultaneous playback

3. Mode: 1-channel record and simultaneous playback



Make sure of the following:

| Record and simultaneous playback | Output level             |
|----------------------------------|--------------------------|
| 4-channel                        | 0 dB (0.775 V)           |
| 2-channel                        | 0 ± 2 dB (0.62 ~ 0.97 V) |
| 1-channel                        | 0 ± 2 dB (0.62 ~ 0.97 V) |

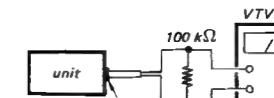
**Adjustment Location:****16. Trap Coil (Bias Leakage) Adjustment****Settings:**

TAPE SPEED switch: 19 cm/s  
 TAPE SELECT switch: NORMAL  
 LINE OUT VOL control: MAX  
 PAN POT switch: OFF  
 REC MODE buttons: pressed (FRONT buttons or BACK buttons)  
 REC VOL (LINE): normal position (See Page 15.)  
 MONITOR switch: SOURCE

**Procedure:**

1. (1) Mode: 2-channel record (FRONT L-, R-CH)

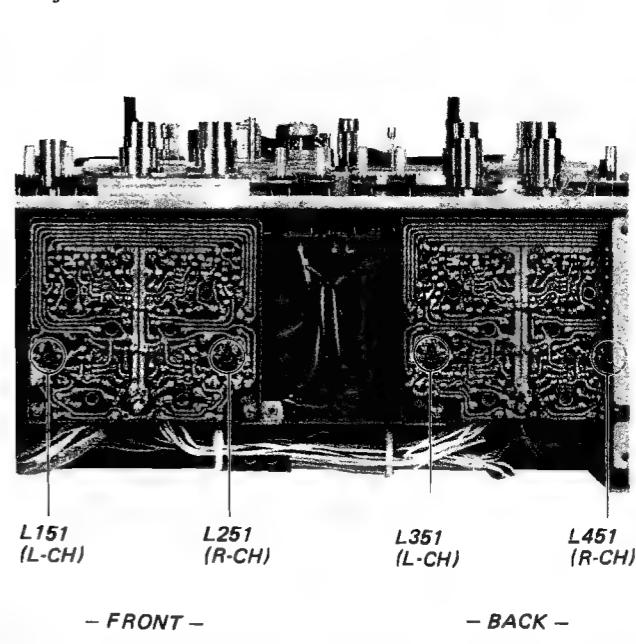
2. Mode: 2-channel record (BACK L-, R-CH)



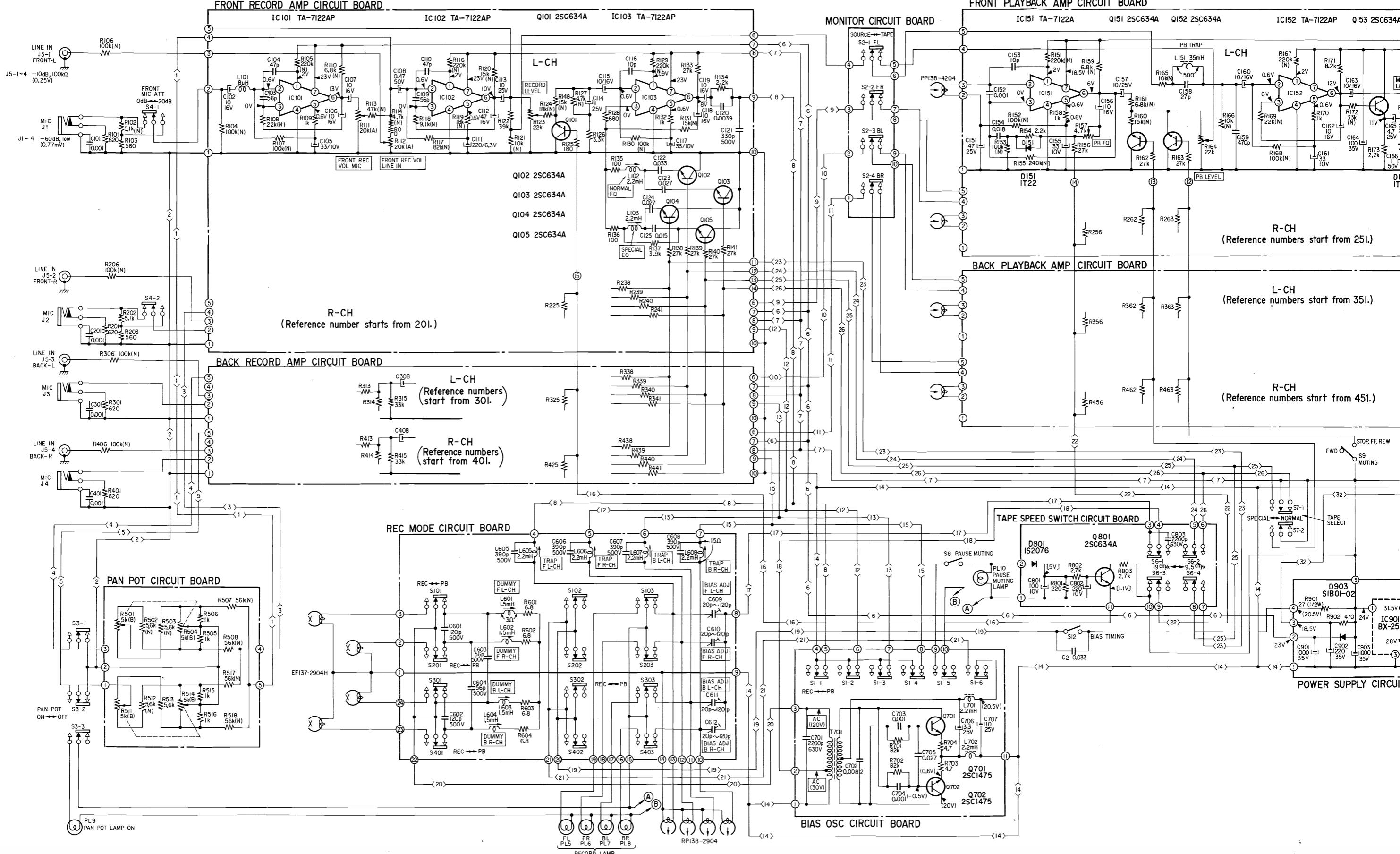
| Record         | Adjust    | VTVM reading |
|----------------|-----------|--------------|
| FRONT L-, R-CH | L151, 251 | minimum      |
| BACK L-, R-CH  | L351, 451 |              |

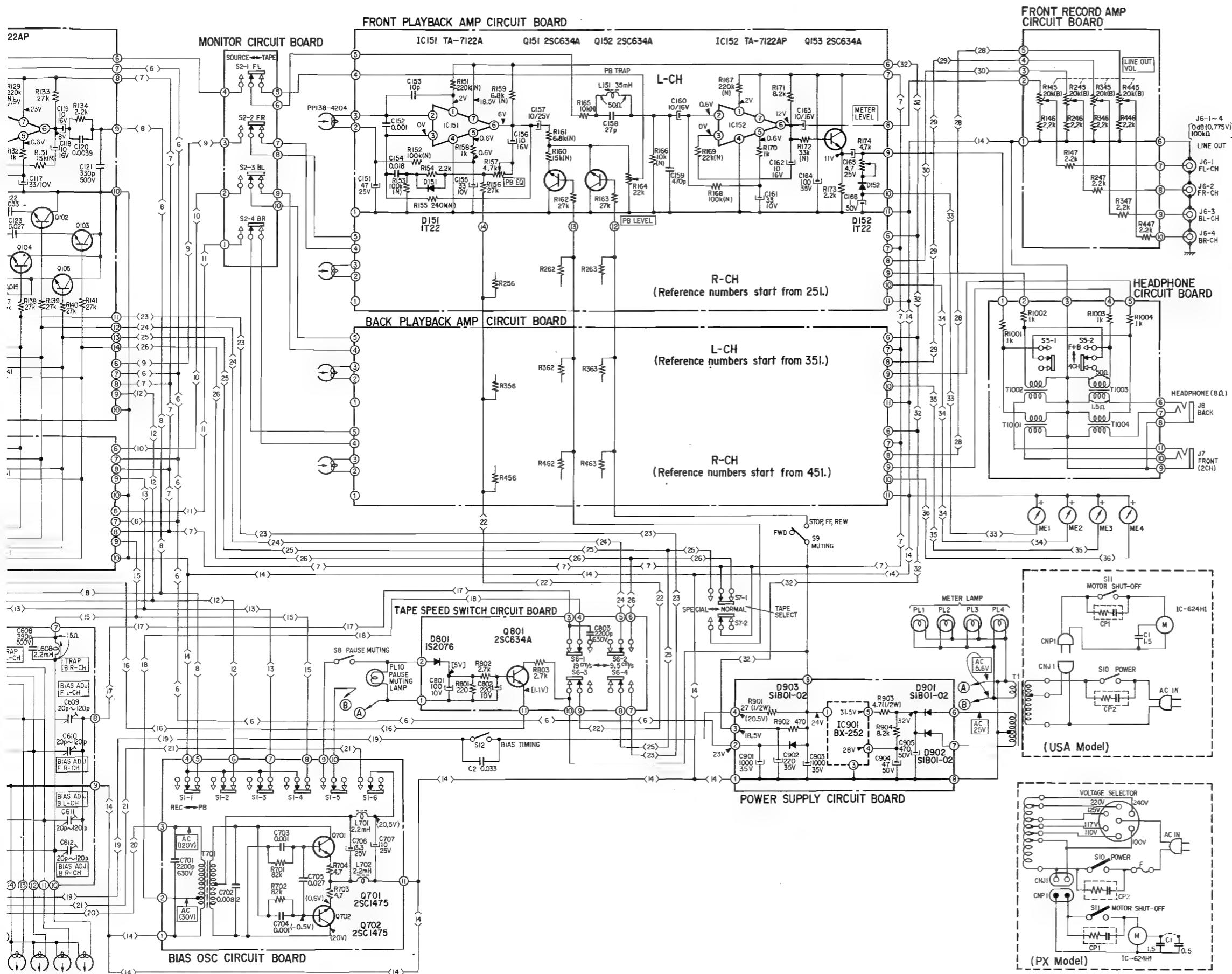
2. Make sure of the following:

| Record    | VTVM reading              |
|-----------|---------------------------|
| 4-channel |                           |
| 2-channel | Less than -40 dB (7.7 mV) |
| 1-channel |                           |

**Adjustment Location:**

#### 4-1. SCHEMATIC DIAGRAM





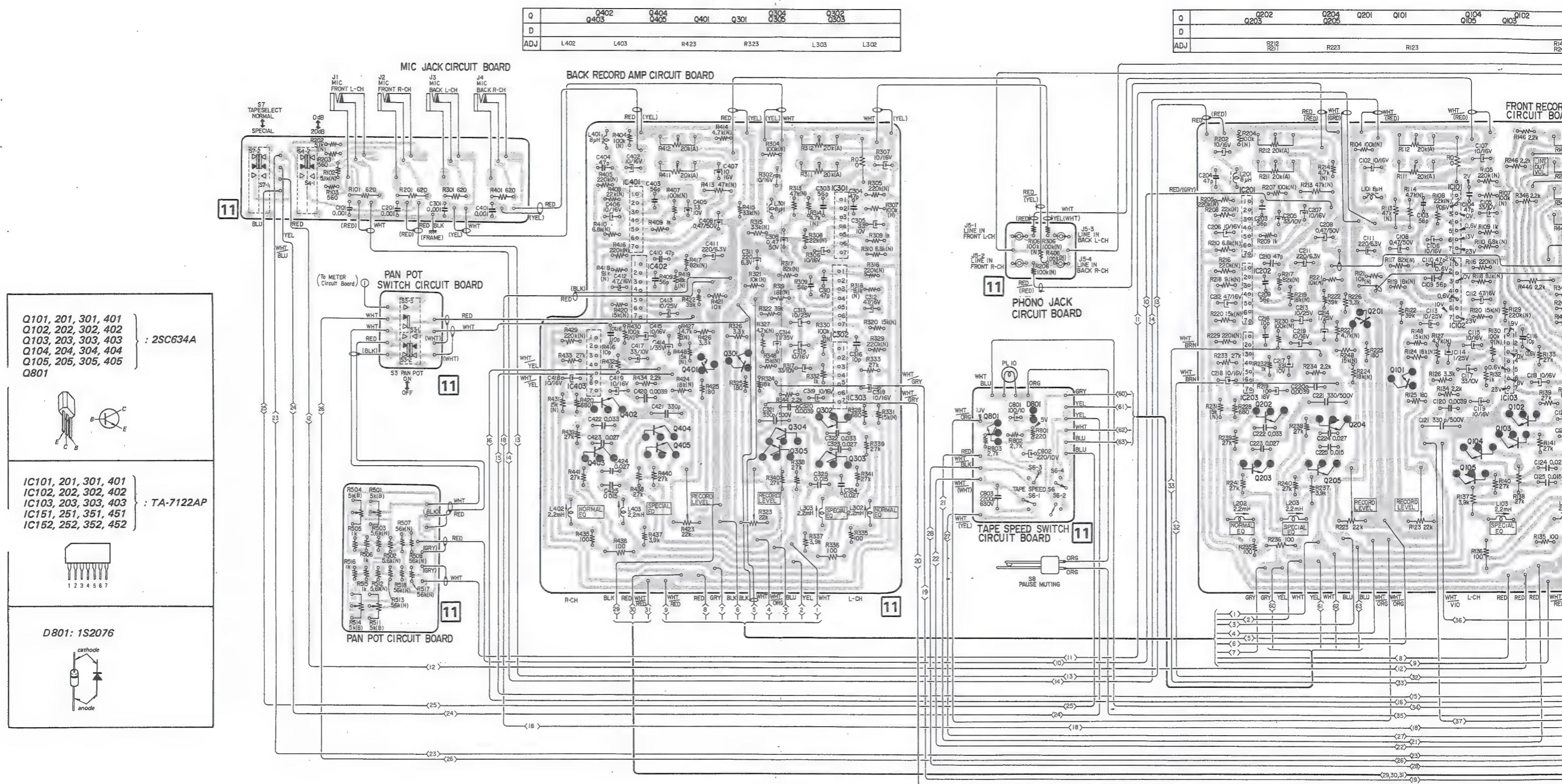
## Note:

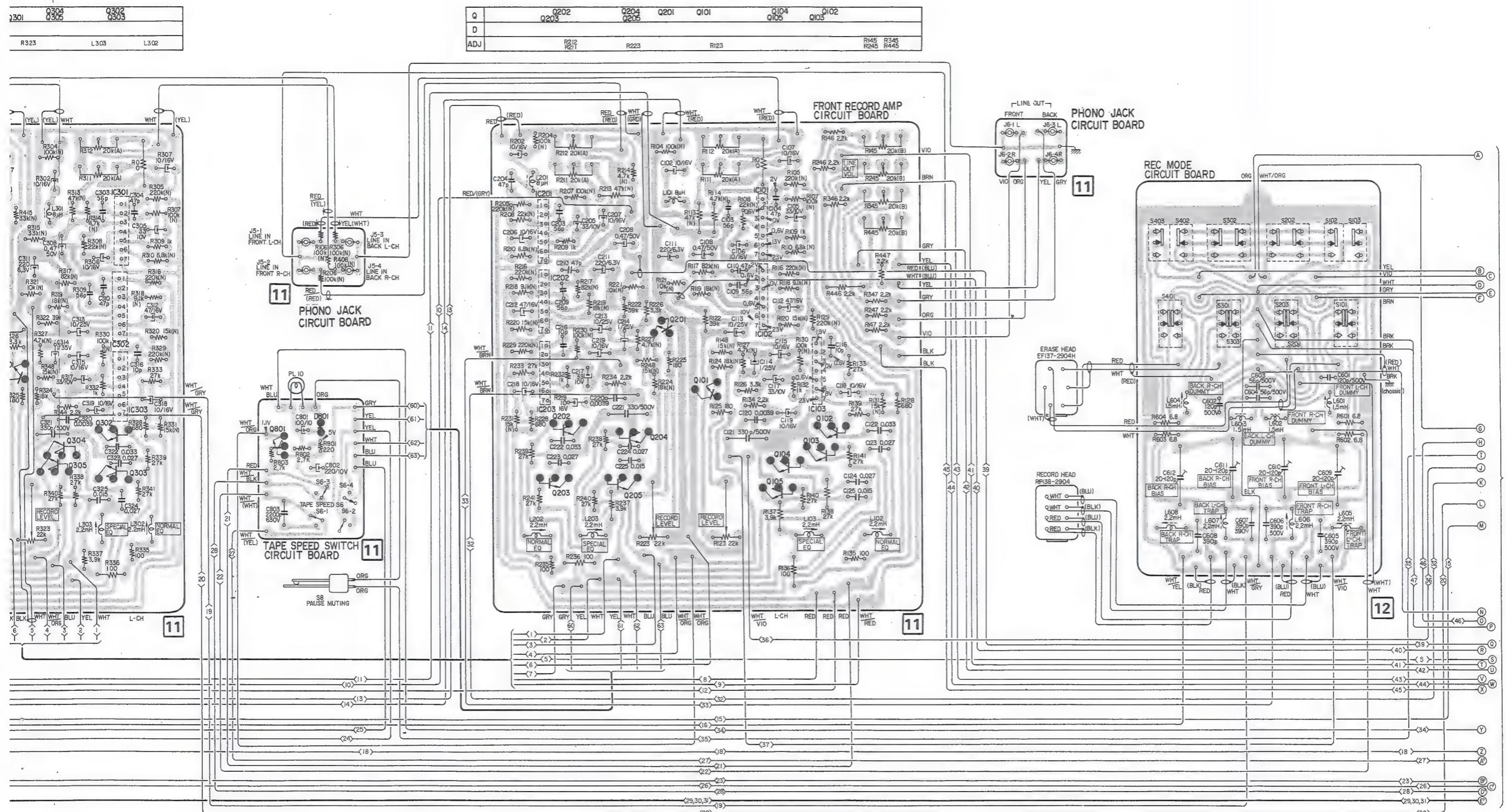
- All resistors and capacitors are in  $\Omega$  and  $\mu F$  unless otherwise specified.
- Letter in ( ) suffixed to variable resistor value indicates characteristics.
- : Chassis ground
- Values for transformer windings are DC resistance.
- (N): Low noise resistor
- Voltage values shown are measured with a VOM (DC 20 k $\Omega/V$ , AC B 2 k $\Omega/V$  and VTVM. Variations may be noted due to normal production tolerances.
- no mark: playback mode voltage (VOM)
- ( ): record mode voltage (VTVM)
- [ ]: pause mode voltage (VTVM)
- Switch mode:

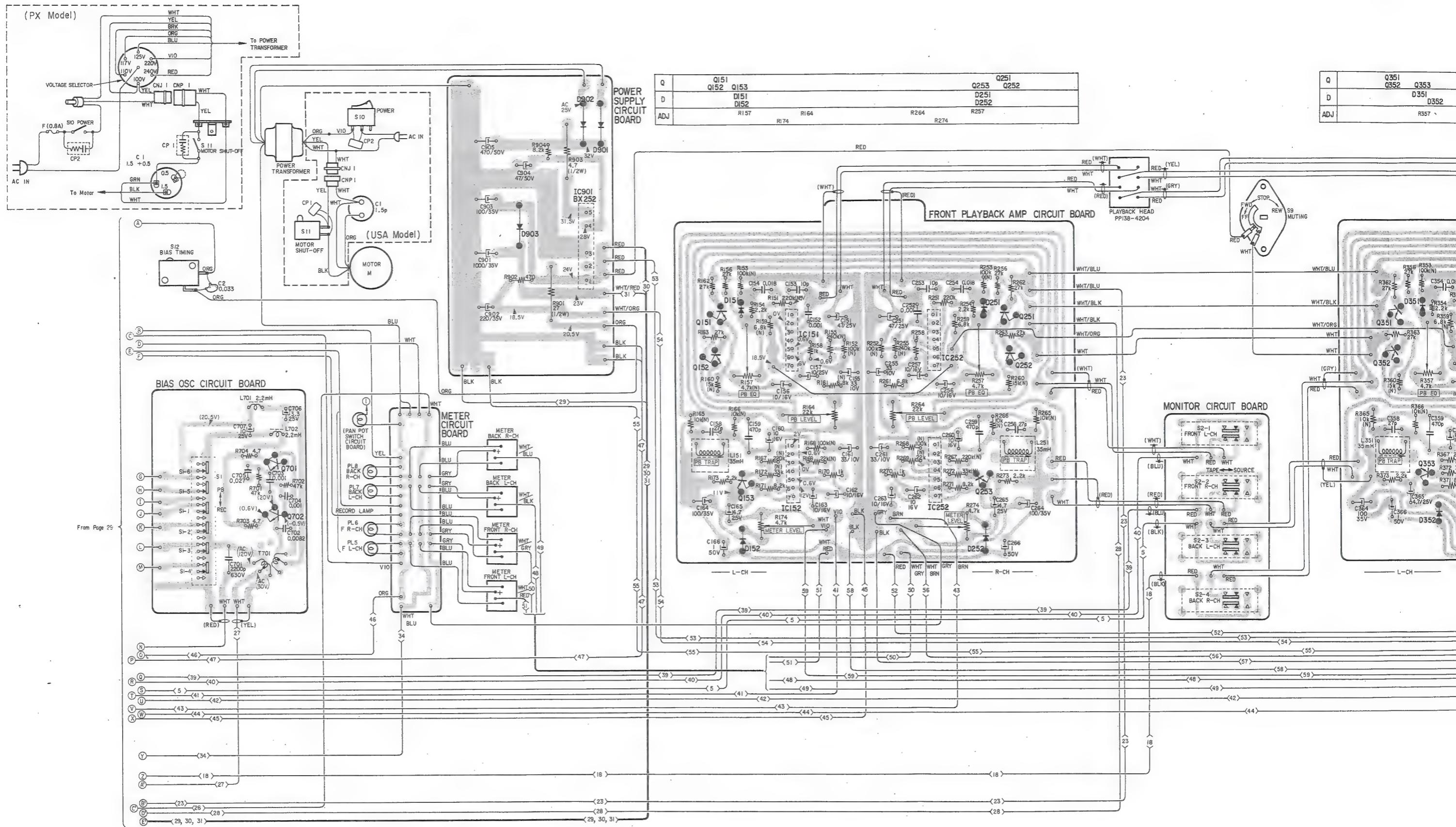
| Ref. No.       | Switch          | Mode      |
|----------------|-----------------|-----------|
| S1             | record/playback | playback  |
| S2             | MONITOR         | TAPE      |
| S3             | PAN POT         | OFF       |
| S4             | FRONT MIC ATT   | 0 dB      |
| S5             | HEADPHONE       | 4 CH      |
| S6             | TAPE SPEED      | 19 cm/sec |
| S7             | TAPE SELECT     | NORMAL    |
| S8             | PAUSE MUTING    | OFF       |
| S9             | MUTING          | OFF       |
| S10            | POWER           | OFF       |
| S11            | motor shut-off  | OFF       |
| S12            | bias timing     | OFF       |
| S101, 201, 203 | REC MODE        | playback  |
| S301, 401, 303 | REC MODE        | playback  |
| S102, 103, 202 |                 |           |
| S303, 402, 403 |                 |           |

#### 4-2. MOUNTING DIAGRAMS

*— Conductor Side —*

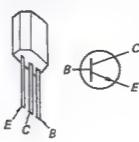






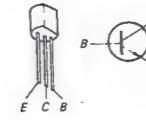
Q151, 251, 351, 451  
Q152, 252, 352, 452 } : 2SC634A  
Q153, 253, 353, 453

D901  
D902 } : SIB01-02  
D903

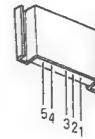


Q701, 702: 2SC1475

D151, 251, 351, 451  
D152, 252, 352, 452 } : 1T22

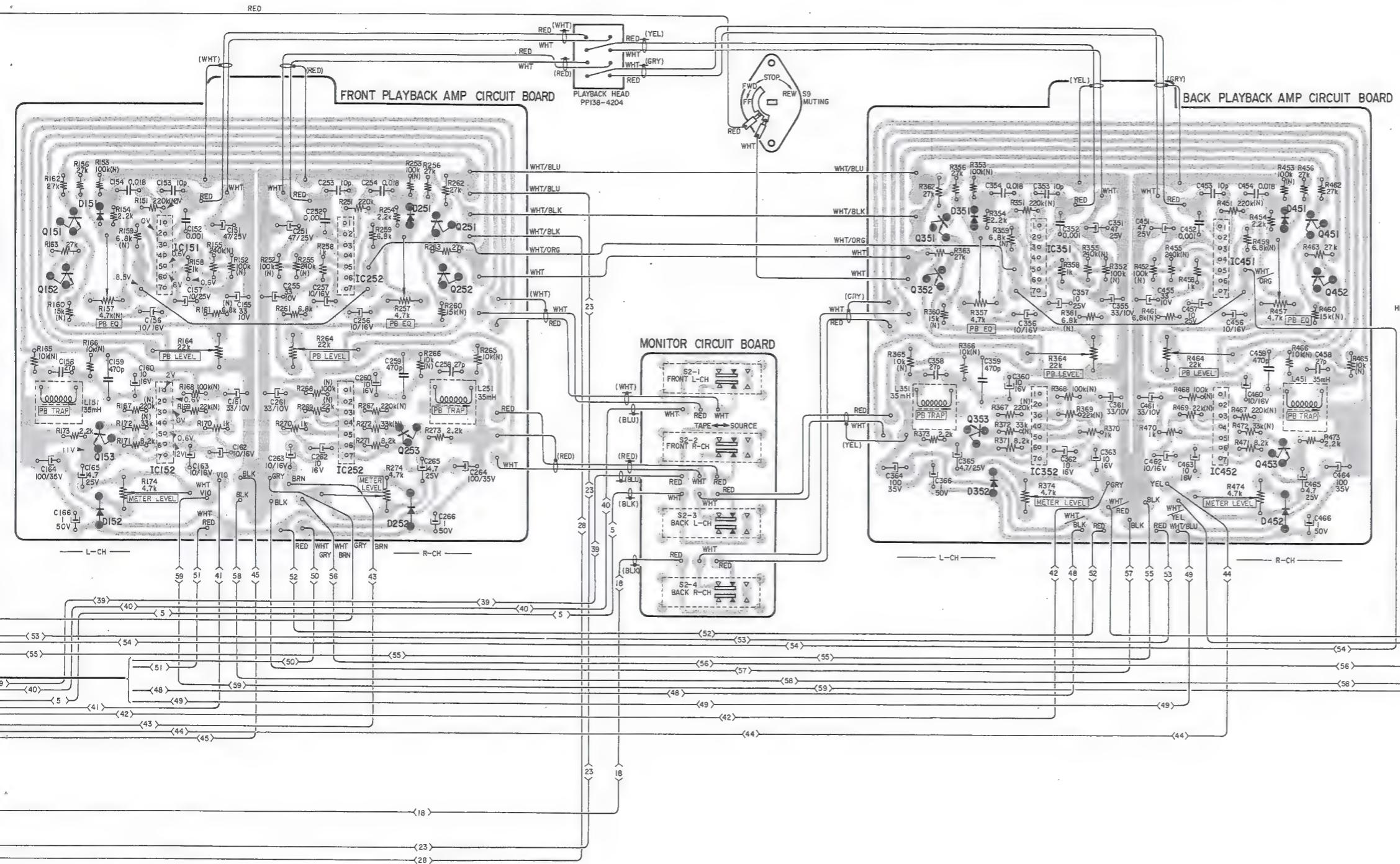


IC901: BX-252



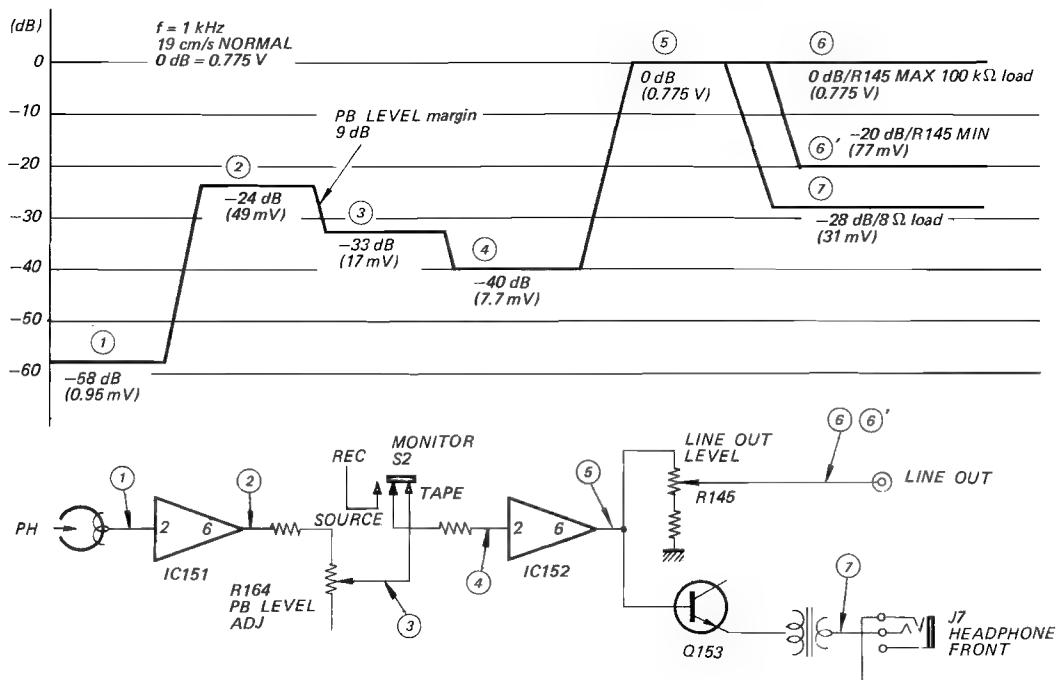
|     |                   |              |
|-----|-------------------|--------------|
| Q   | Q151<br>Q152 Q153 | Q251<br>Q252 |
| D   | D151<br>D152      | D251<br>D252 |
| ADJ | R157<br>R174      | R264<br>R274 |

|     |              |              |              |
|-----|--------------|--------------|--------------|
| Q   | Q351<br>Q352 | Q353         | Q451<br>Q452 |
| D   | D351<br>D352 | D352         | D451<br>D452 |
| ADJ | R357<br>R374 | R364<br>R374 | R464<br>R474 |

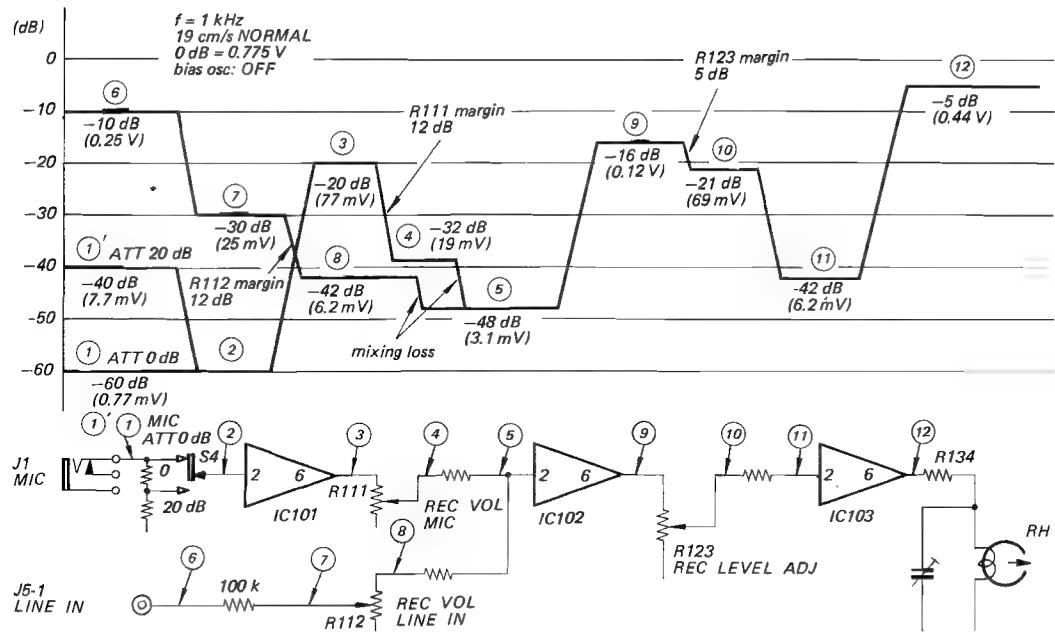


## 4-3. LEVEL DIAGRAMS

## Playback



## Record

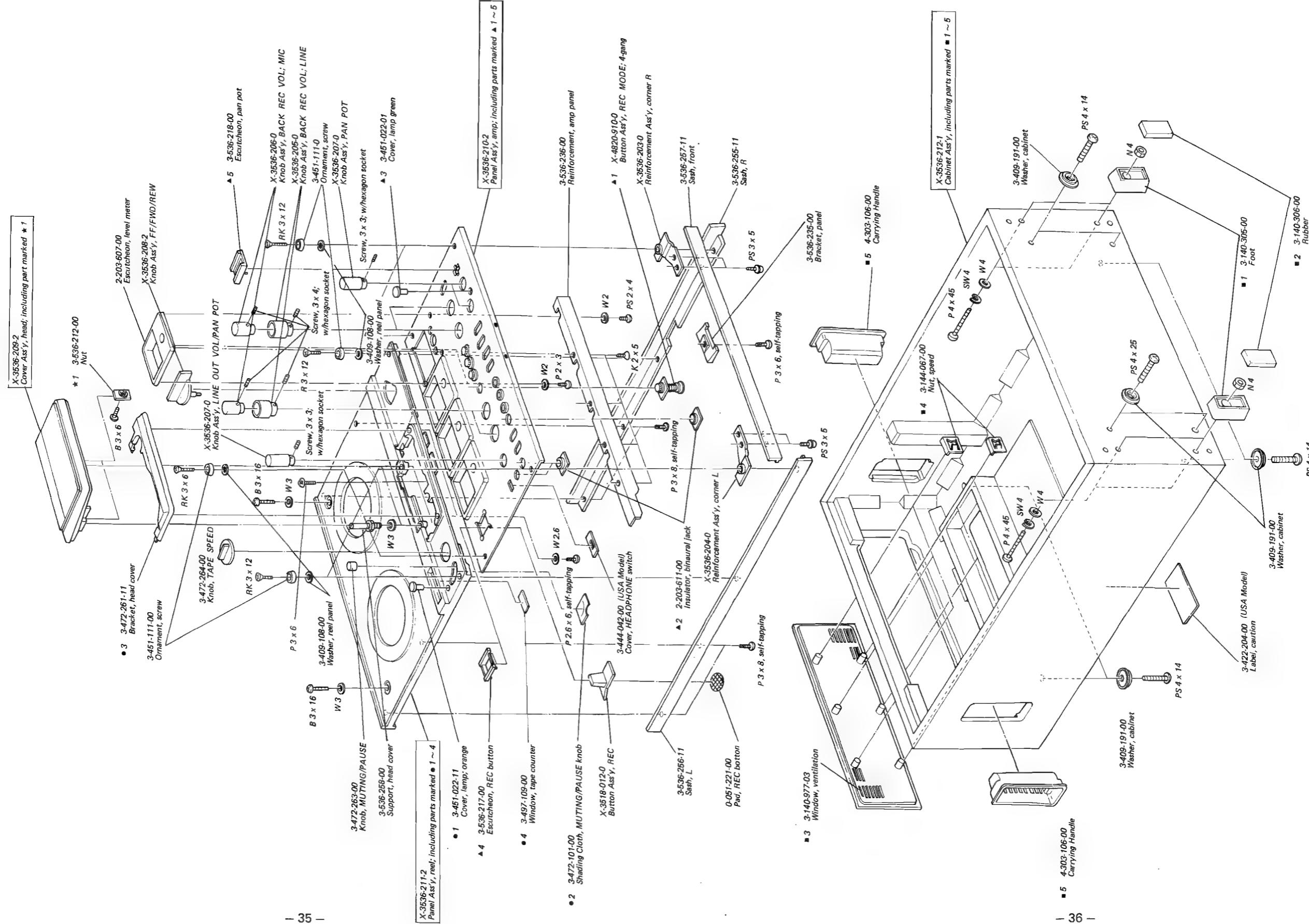


**MEMO**

## SECTION 5

### EXPLODED VIEWS

## 5-1. EXPLODED VIEW (1)

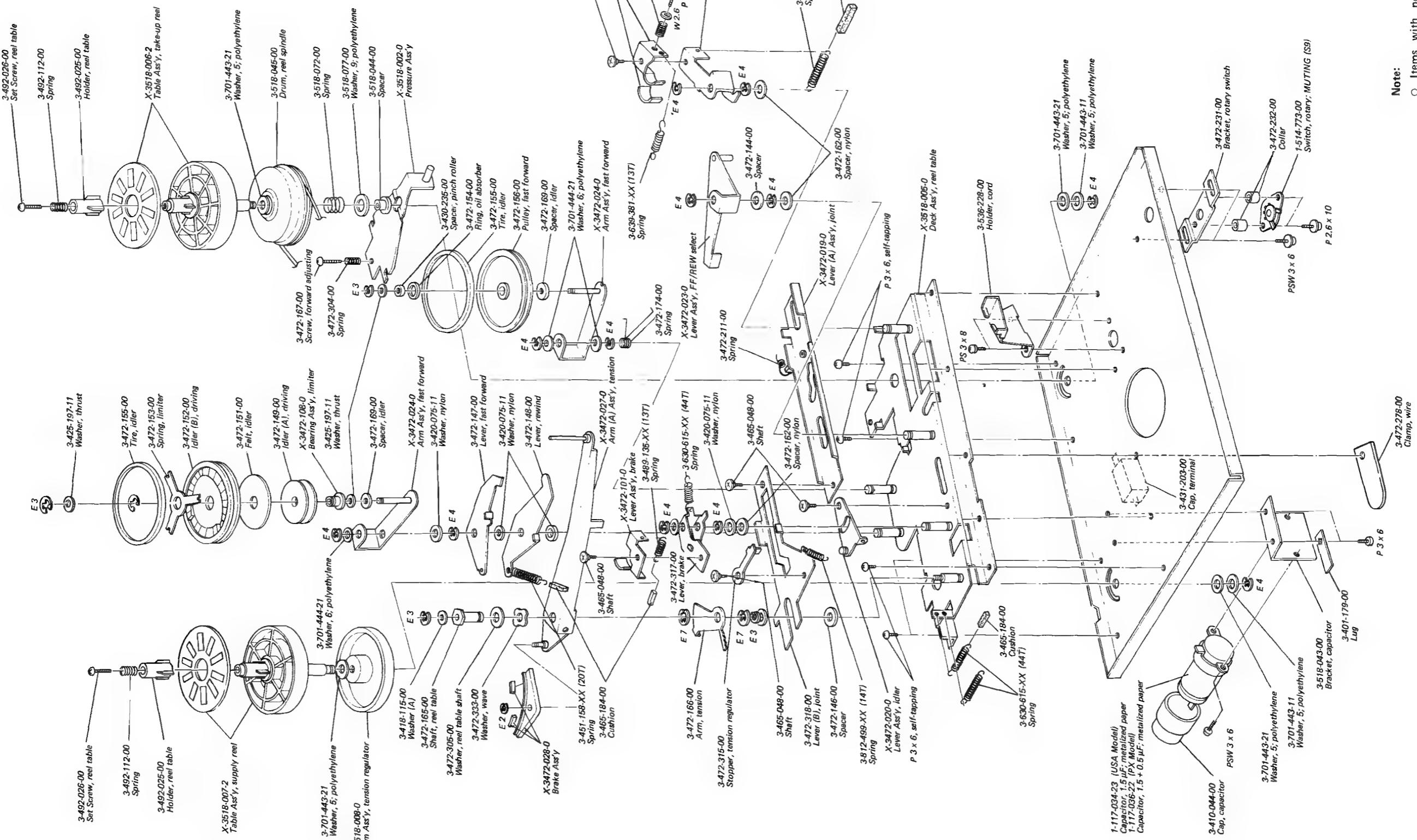


**Note:**

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.

**TC-388-4**      **TC-388-4**

## 5-2. EXPLODED VIEW (2)



1-11-034-23 (USA Model)  
Capacitor, 1.5  $\mu$ F, metalized paper  
1-11-036-22 (PX Model)  
Capacitor, 1.5  $\mu$ F, metalized paper

*Lapachol, 1.3 ± 0.3  $\mu$ r, metallized*

1

2410.00

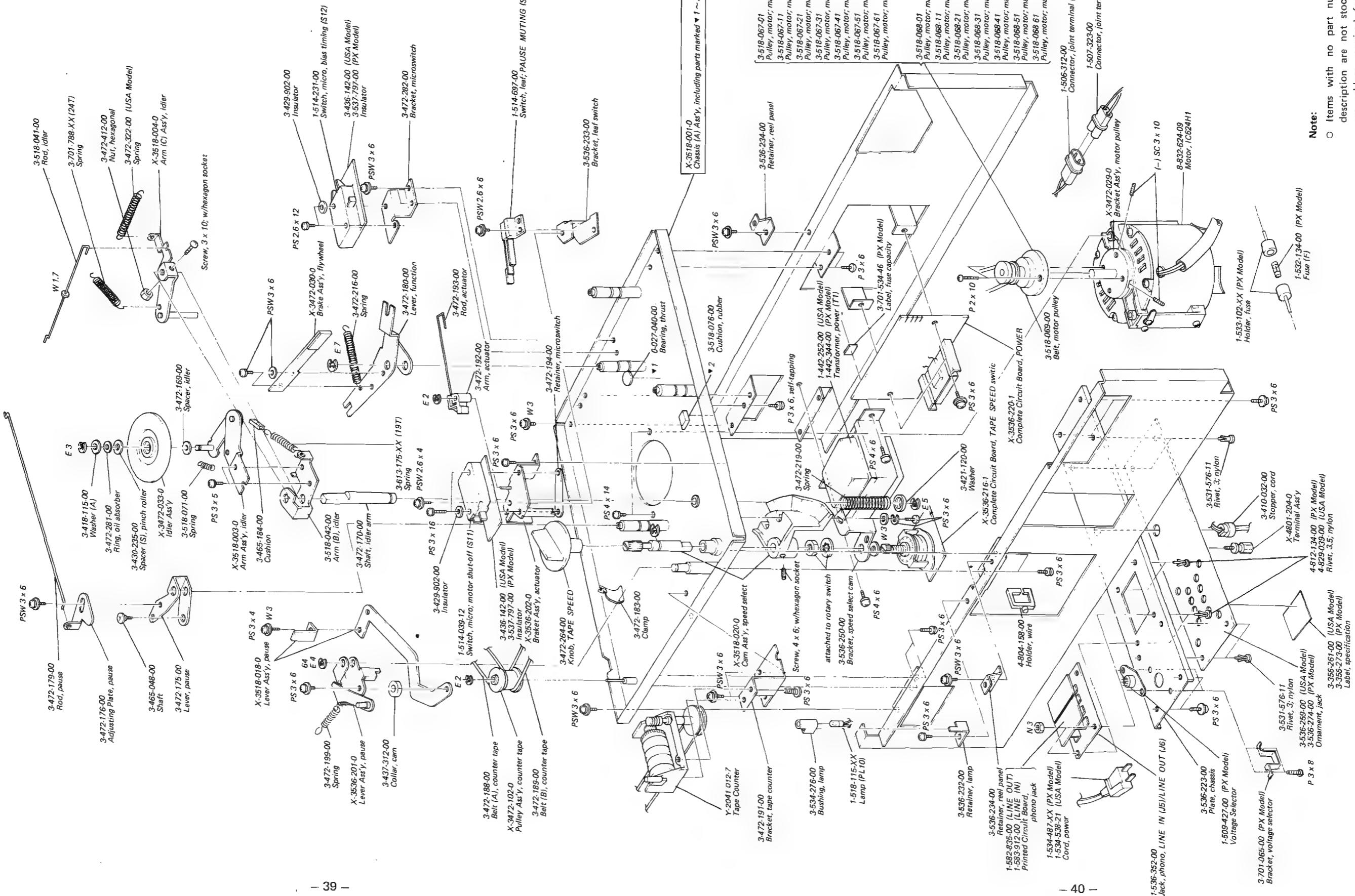
PSW 3 x 6  
Cap. capacitor

3-701-443-21  
Washer, 5; polyethyl

3-701-443-  
Washier, 5; 1

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.  
(-) = slotted head
- (□□T) shows the number of coils in spring.

### 5-3. EXPLODED VIEW (3)

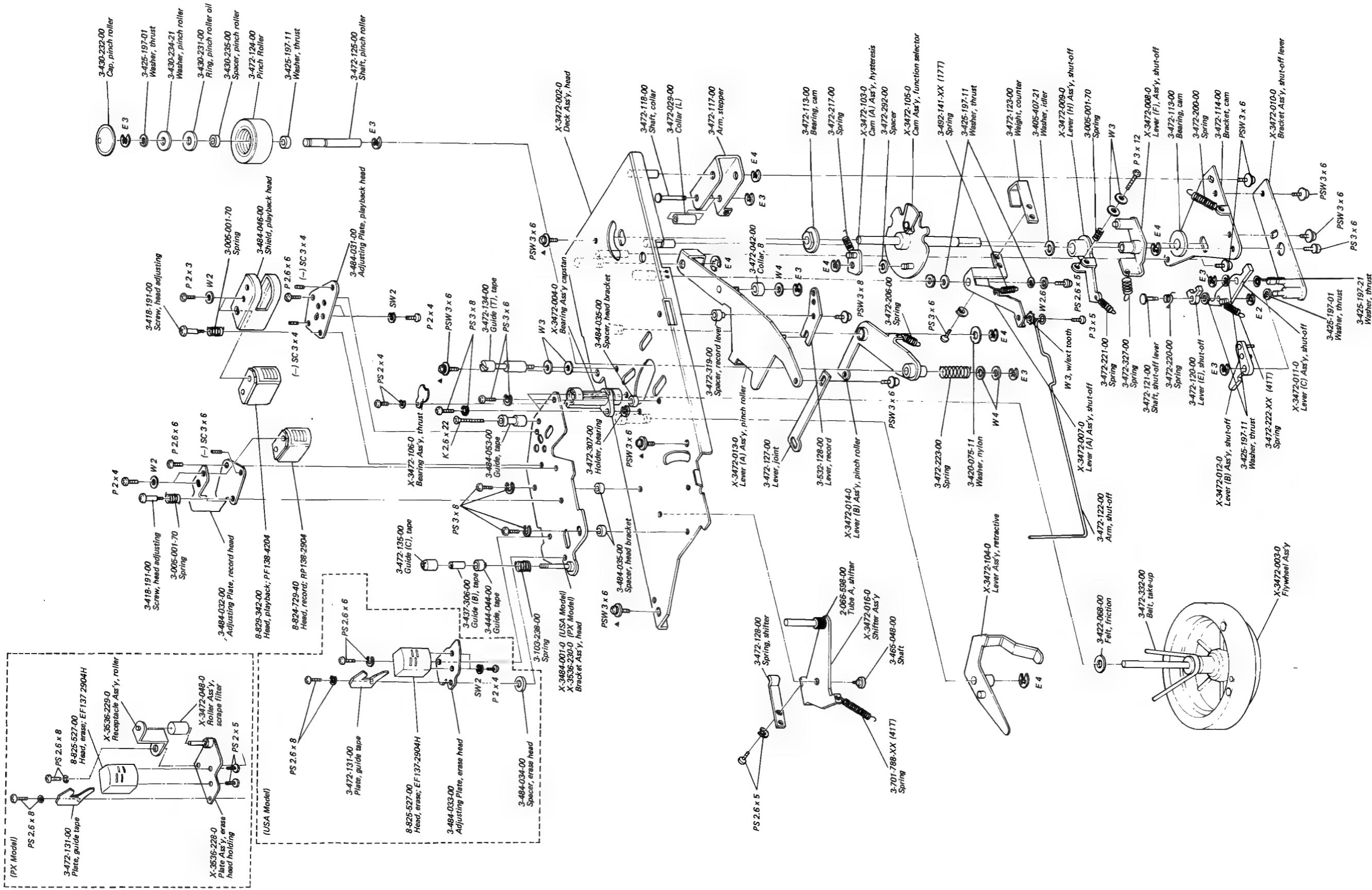


**Note:**

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type

- (□□T) shows the number of coils in spring.

## 5-4. EXPLODED VIEW (4)

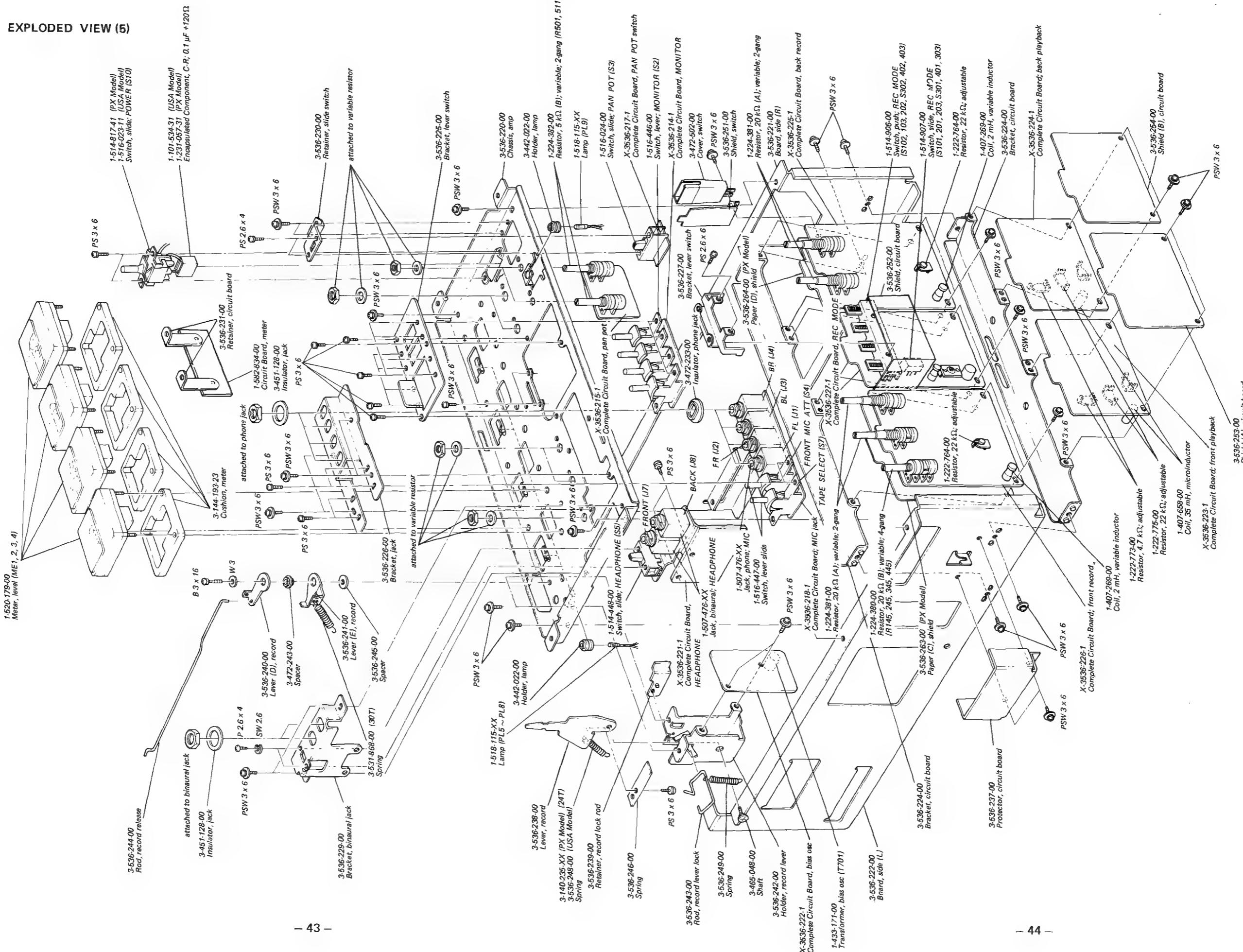


## Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
- (□□T) shows the number of coils in spring.

**TC-388-4**      **TC-388-4**

## 5-5. EXPLODED VIEW (5)



Note:

Items with no part number and/or no description are not stocked because they are seldom required for routine service.

- unless otherwise noted.
- (—) = slotted head
- (SQT) shows the number of coils in spring.

**SECTION 6**  
**PARTS LIST**

| <u>Ref. No.</u>                | <u>Part No.</u>                   | <u>Description</u> | <u>Ref. No.</u>     | <u>Part No.</u>    | <u>Description</u> | <u>Ref. No.</u>           | <u>Part No.</u> | <u>Description</u> | <u>Ref. No.</u>  | <u>Part No.</u> | <u>Description</u> |                                |
|--------------------------------|-----------------------------------|--------------------|---------------------|--------------------|--------------------|---------------------------|-----------------|--------------------|--|-----------------|--------------------|--------------------------------|
| <b>COMPLETE CIRCUIT BOARDS</b> |                                   |                    |                     |                    |                    |                           |                 |                    |  |                 |                    |                                |
| X-3536-214-1                   | MONITOR                           | IC103, 203 )       | IC303, 403 )        | Integrated Circuit | TA-7122AP          |                           |                 |                    | <b>CAPACITORS</b>  |                 |                    |                                |
| X-3536-215-1                   | Pan pot                           | IC151, 251 )       | IC351, 451 )        | Integrated Circuit | TA-7122AP          |                           |                 |                    | All capacitors are in $\mu$ F unless otherwise indicated.<br>$p = \mu\mu$ F elect = electrolytic |                 |                    |                                |
| X-3536-216-1                   | TAPE SPEED switch                 | IC152, 252 )       | IC352, 452 )        | Integrated Circuit | TA-7122AP          |                           |                 |                    | C1   | 1-117-034-23    | 1.5                | metalized paper<br>(USA Model) |
| X-3536-217-1                   | PAN POT switch                    | IC901              |                     | Integrated Circuit | BX-252             |                           |                 |                    | C1   | 1-117-036-22    | 1.5 + 0.5          | metalized paper<br>(PX Model)  |
| X-3536-218-1                   | MIC jack                          |                    |                     |                    |                    |                           |                 |                    | C2   | 1-105-759-12    | 0.033              | 200 V mylar                    |
| X-3536-220-1                   | Power supply                      | D151, 251 )        | D351, 451 )         | Diode              | 1T22               |                           |                 |                    | C101, 201 )  | 1-101-455-11    | 0.001              | 50 V ceramic                   |
| X-3536-221-1                   | HEADPHONE                         | D152, 252 )        | D352, 452 )         | Diode              | 1T22               |                           |                 |                    | C102, 202 )  | 1-121-651-11    | 10                 | 16 V elect                     |
| X-3536-222-1                   | Bias Osc                          |                    |                     |                    |                    |                           |                 |                    | C103, 203 )  | 1-107-125-11    | 56 p               | 50 V silvered mica             |
| X-3536-223-1                   | Front Playback                    |                    |                     |                    |                    |                           |                 |                    | C104, 204 )  | 1-107-123-11    | 47 p               | 50 V silvered mica             |
| X-3536-224-1                   | Back Playback                     |                    |                     |                    |                    |                           |                 |                    | C105, 205 )  | 1-121-402-11    | 33                 | 10 V elect                     |
| X-3536-225-1                   | Back Record                       | D801               |                     | Diode              | 1S2076             |                           |                 |                    | C106, 206 )  | 1-121-651-11    | 10                 | 16 V elect                     |
| X-3536-226-1                   | Front Record                      | D901               |                     | Diode              | SIB01-02           |                           |                 |                    | C107, 207 )  | 1-121-651-11    | 10                 | 16 V elect                     |
| X-3536-227-1                   | REC MODE                          | D902               |                     | Diode              | SIB01-02           |                           |                 |                    | C108, 208 )  | 1-121-726-11    | 0.47               | 50 V elect                     |
|                                |                                   | D903               |                     | Diode              | SIB01-02           |                           |                 |                    | C109, 209 )  | 1-107-125-11    | 56 p               | 50 V silvered mica             |
| <b>PRINTED CIRCUIT BOARD</b>   |                                   |                    |                     |                    |                    |                           |                 |                    |  |                 |                    |                                |
| 1-582-835-00                   | Printed Circuit Board, phono jack |                    |                     | <b>COILS</b>       |                    |                           |                 |                    | C110, 210 )  | 1-107-123-11    | 47 p               | 50 V silvered mica             |
| 1-582-912-00                   | Printed Circuit Board, phono jack |                    |                     | L101, 201 )        | 1-407-519-00       | 8 $\mu$ H, microinductor  |                 |                    | C111, 211 )  | 1-121-419-11    | 220                | 6.3 V elect                    |
| 1-582-834-00                   | Meter                             |                    |                     | L301, 401          |                    |                           |                 |                    | C112, 212 )  | 1-121-409-11    | 47                 | 16 V elect                     |
| <b>SEMICONDUCTORS</b>          |                                   |                    |                     |                    |                    |                           |                 |                    |  |                 |                    |                                |
| Q101, 201 )                    | Transistor                        | 2SC634A            |                     | L151, 251 )        | 1-407-658-00       | 35 mH, microinductor      |                 |                    | C113, 213 )  | 1-121-748-11    | 10                 | 25 V elect                     |
| Q301, 401 )                    |                                   |                    |                     | L351, 451 )        |                    |                           |                 |                    | C313, 413 )  |                 |                    |                                |
| Q102, 202 )                    | Transistor                        | 2SC634A            |                     | L601               | 1-407-268-00       | 1.5 mH, variable inductor |                 |                    | C114, 214 )  | 1-131-236-21    | 1                  | 25 V tantalum                  |
| Q302, 402 )                    |                                   |                    |                     | L602               | 1-407-268-00       | 1.5 mH, variable inductor |                 |                    | C314, 414 )  |                 |                    |                                |
| Q103, 203 )                    | Transistor                        | 2SC634A            |                     | L603               | 1-407-268-00       | 1.5 mH, variable inductor |                 |                    | C115, 215 )  | 1-121-651-11    | 10                 | 16 V elect                     |
| Q303, 403 )                    |                                   |                    |                     | L604               | 1-407-268-00       | 1.5 mH, variable inductor |                 |                    | C315, 415 )  |                 |                    |                                |
| Q104, 204 )                    | Transistor                        | 2SC634A            |                     | L605               | 1-407-268-00       | 2.2 mH, variable inductor |                 |                    | <b>TRANSFORMERS</b>  |                 |                    |                                |
| Q304, 404 )                    |                                   |                    |                     | L606               | 1-407-268-00       | 2.2 mH, variable inductor |                 |                    | C116, 216 )  | 1-107-107-11    | 10 p               | 50 V silvered mica             |
| Q105, 205 )                    | Transistor                        | 2SC634A            |                     | L607               | 1-407-268-00       | 2.2 mH, variable inductor |                 |                    | C316, 416 )  |                 |                    |                                |
| Q305, 405 )                    |                                   |                    |                     | L608               | 1-407-268-00       | 2.2 mH, variable inductor |                 |                    |  |                 |                    |                                |
| Q151, 251 )                    | Transistor                        | 2SC634A            |                     | L701               | 1-407-198-21       | 2.2 mH, microinductor     |                 |                    |  |                 |                    |                                |
| Q351, 451 )                    |                                   |                    |                     | L702               | 1-407-198-21       | 2.2 mH, microinductor     |                 |                    |  |                 |                    |                                |
| Q152, 252 )                    | Transistor                        | 2SC634A            |                     |                    |                    |                           |                 |                    |  |                 |                    |                                |
| Q352, 452 )                    |                                   |                    |                     |                    |                    |                           |                 |                    |  |                 |                    |                                |
| Q153, 253 )                    | Transistor                        | 2SC634A            |                     |                    |                    |                           |                 |                    |  |                 |                    |                                |
| Q353, 453 )                    |                                   |                    |                     |                    |                    |                           |                 |                    |  |                 |                    |                                |
|                                |                                   |                    | <b>TRANSFORMERS</b> |                    |                    |                           |                 |                    |  |                 |                    |                                |
| Q701                           | Transistor                        | 2SC1475            |                     | T1                 | 1-442-252-00       | Power (USA Model)         |                 |                    |  |                 |                    |                                |
| Q702                           | Transistor                        | 2SC1475            |                     |                    | 1-442-344-00       | Power (PX Model)          |                 |                    |  |                 |                    |                                |
| Q801                           | Transistor                        | 2SC634A            |                     | T701               | 1-443-171-00       | Bias Osc                  |                 |                    |  |                 |                    |                                |
| IC101, 201 )                   | Integrated Circuit                | TA-7122AP          |                     |                    |                    |                           |                 |                    |  |                 |                    |                                |
| IC301, 401 )                   |                                   |                    |                     |                    |                    |                           |                 |                    |  |                 |                    |                                |
| IC102, 202 )                   | Integrated Circuit                | TA-7122AP          |                     | T1001              | 1-427-270-00       | Headphone (USA Model)     |                 |                    |  |                 |                    |                                |
| IC302, 402 )                   |                                   |                    |                     |                    | 1-427-270-XX       | Headphone (PX Model)      |                 |                    |  |                 |                    |                                |
|                                |                                   |                    |                     | T1004              |                    |                           |                 |                    |  |                 |                    |                                |

| <u>Ref. No.</u>        | <u>Part No.</u> | <u>Description</u> |       |               |  |
|------------------------|-----------------|--------------------|-------|---------------|--|
| C163, 263<br>C363, 463 | ) 1-121-651-11  | 10                 | 16 V  | elect         |  |
| C164, 264<br>C364, 464 | ) 1-121-357-11  | 100                | 35 V  | elect         |  |
| C165, 265<br>C365, 465 | ) 1-121-395-11  | 4.7                | 25 V  | elect         |  |
| C166, 266<br>C366, 466 | ) 1-121-391-11  | 1                  | 50 V  | elect         |  |
| C601                   | 1-107-171-11    | 120 p              | 500 V | silvered mica |  |
| C602                   | 1-107-171-11    | 120 p              | 500 V | silvered mica |  |
| C603                   | 1-107-165-11    | 56 p               | 500 V | silvered mica |  |
| C604                   | 1-107-165-11    | 56 p               | 500 V | silvered mica |  |
| C605                   | 1-107-183-11    | 390 p              | 500 V | silvered mica |  |
| C606                   | 1-107-183-11    | 390 p              | 500 V | silvered mica |  |
| C607                   | 1-107-183-11    | 390 p              | 500 V | silvered mica |  |
| C608                   | 1-107-183-11    | 390 p              | 500 V | silvered mica |  |
| C609                   | 1-141-069-00    | 20 p ~ 120 p       |       | trimmer       |  |
| C610                   | 1-141-069-00    | 20 p ~ 120 p       |       | trimmer       |  |
| C611                   | 1-141-069-00    | 20 p ~ 120 p       |       | trimmer       |  |
| C612                   | 1-141-069-00    | 20 p ~ 120 p       |       | trimmer       |  |
| C701                   | 1-129-706-11    | 2200 p             | 630 V | polypropylene |  |
| C702                   | 1-105-512-12    | 0.0082             | 50 V  | mylar         |  |
| C703                   | 1-105-501-12    | 0.001              | 50 V  | mylar         |  |
| C704                   | 1-105-501-12    | 0.001              | 50 V  | mylar         |  |
| C705                   | 1-105-518-12    | 0.027              | 50 V  | mylar         |  |
| C706                   | 1-121-392-11    | 3.3                | 25 V  | elect         |  |
| C707                   | 1-121-398-11    | 10                 | 25 V  | elect         |  |
| C801                   | 1-121-414-11    | 100                | 10 V  | elect         |  |
| C802                   | 1-121-420-11    | 220                | 10 V  | elect         |  |
| C803                   | 1-129-706-11    | 2200 p             | 630 V | polypropylene |  |
| C901                   | 1-121-388-11    | 1000               | 35 V  | elect         |  |
| C902                   | 1-121-261-11    | 220                | 35 V  | elect         |  |
| C903                   | 1-121-388-11    | 1000               | 35 V  | elect         |  |
| C904                   | 1-121-411-11    | 47                 | 50 V  | elect         |  |
| C905                   | 1-121-810-11    | 470                | 50 V  | elect         |  |

| <u>Ref. No.</u>  | <u>Part No.</u>                | <u>Description</u>                                  |                 |  |  |  |  |
|--|--------------------------------|---|-----------------|--|--|--|--|
| <b>RESISTORS</b>   |                                |   |                 |  |  |  |  |
| All resistors are in $\Omega$ . $\frac{1}{4}$ W, Regular type carbon and composition resistors are omitted. Check schematic diagram for resistance values. (k = 1000, M = 1000k) |                                |   |                 |  |  |  |  |
| R111, 211<br>R311, 411   | ) 1-224-381-00                 | 20 k (A), variable; 2-gang                          |                 |  |  |  |  |
| R112, 212<br>R312, 412   | ) 1-224-381-00                 | 20 k (A), variable; 2-gang                          |                 |  |  |  |  |
| R123, 223<br>R322, 422   | ) 1-222-764-00                 | 22 k, adjustable                                    |                 |  |  |  |  |
| R145, 245<br>R345, 445   | ) 1-224-380-00                 | 20 k (B), variable; 4-gang                          |                 |  |  |  |  |
| R157, 257<br>R357, 457   | ) 1-222-773-00                 | 4.7 k, adjustable                                   |                 |  |  |  |  |
| R164, 264<br>R364, 464   | ) 1-222-775-00                 | 22 k, adjustable                                    |                 |  |  |  |  |
| R174, 274<br>R374, 474   | ) 1-222-773-00                 | 4.7 k, adjustable                                   |                 |  |  |  |  |
| R501, 511<br>R504, 514   | ) 1-224-382-00                 | 5 k (B), variable; 2-gang                           |                 |  |  |  |  |
| R901   | 1-244-835-11                   | 27  | $\frac{1}{2}$ W |  |  |  |  |
| R903   | 1-244-817-11                   | 4.7   | $\frac{1}{2}$ W |  |  |  |  |
| <b>SWITCHES</b>  |                                |   |                 |  |  |  |  |
| S1   | 1-514-978-21                   | Slide, record/playback                              |                 |  |  |  |  |
| S2   | 1-516-446-00                   | Lever, MONITOR                                      |                 |  |  |  |  |
| S3   | 1-516-024-00                   | Slide, PAN POT                                      |                 |  |  |  |  |
| S4   | 1-516-447-00                   | Lever slide, FRONT MIC ATT                          |                 |  |  |  |  |
| S5   | 1-514-448-00                   | Slide, HEADPHONE                                    |                 |  |  |  |  |
| S6   | 1-516-449-00                   | Rotary, TAPE SPEED                                  |                 |  |  |  |  |
| S7   | 1-516-447-00                   | Lever slide, TAPE SELECT                            |                 |  |  |  |  |
| S8   | 1-514-697-00                   | Leaf, PAUSE MUTING                                  |                 |  |  |  |  |
| S9   | 1-514-773-00                   | Rotary, MUTING                                      |                 |  |  |  |  |
| S10  | ( 1-514-817-41<br>1-516-023-11 | Slide, POWER (PX Model)<br>Slide, POWER (USA Model) |                 |  |  |  |  |

| <u>Ref. No.</u> | <u>Part No.</u> | <u>Description</u>     |
|-----------------|-----------------|------------------------|
| S11             | 1-514-039-12    | Micro, motor shout-off |
| S12             | 1-514-231-00    | Micro, bias timing     |

|           |              |                 |
|-----------|--------------|-----------------|
| S101, 201 | 1-514-907-00 | Slide, REC MODE |
| S203, 301 | 1-514-906-00 | Push, REC MODE  |
| S401, 303 |              |                 |
| S102, 103 |              |                 |
| S202, 302 | 1-514-906-00 | Push, REC MODE  |
| S402, 403 |              |                 |

**JACKS**

|    |              |                            |
|----|--------------|----------------------------|
| J1 | 1-507-476-XX | Phone, MIC; front L        |
| J2 | 1-507-476-XX | Phone, MIC; front R        |
| J3 | 1-507-476-XX | Phone, MIC; back L         |
| J4 | 1-507-476-XX | Phone, MIC; back R         |
| J5 | 1-536-352-00 | Phono, LINE IN             |
| J6 | 1-536-352-00 | Phono, LINE OUT            |
| J7 | 1-507-476-XX | Binaural, HEADPHONE, front |
| J8 | 1-507-476-XX | Binaural, HEADPHONE, back  |

**MISCELLANEOUS**

|      |              |  |
|------|--------------|--|
| CNP1 | 1-506-312-00 | Connector, joint terminal  |
| CNJ1 | 1-507-323-00 | Connector, joint terminal  |
| CP1  | 1-101-534-31 | Encapsulated Component, C-R;<br>0.1 $\mu$ F + 120 $\Omega$ (USA Model) |
|      | 1-231-057-31 | Encapsulated Component, C-R;<br>0.1 $\mu$ F + 120 $\Omega$ (PX Model)  |
| CP2  | 1-101-534-31 | Encapsulated Component, C-R;<br>0.1 $\mu$ F + 120 $\Omega$ (USA Model) |
|      | 1-231-057-31 | Encapsulated Component, C-R;<br>0.1 $\mu$ F + 120 $\Omega$ (PX Model)  |
| F    | 1-532-134-00 | Fuse (PX Model)  |
| M    | 8-832-624-09 | Motor, IC624H1   |
| ME1  | 1-520-179-00 | Meter, level   |
| ME2  | 1-520-179-00 | Meter, level   |

| <u>Ref. No.</u> | <u>Part No.</u> | <u>Description</u> |
|-----------------|-----------------|--------------------|
|-----------------|-----------------|--------------------|

|     |              |              |
|-----|--------------|--------------|
| ME3 | 1-520-179-00 | Meter, level |
| ME4 | 1-520-179-00 | Meter, level |

|     |  |                           |
|-----|--|---------------------------|
| PL1 |  |                           |
| PL2 |  |                           |
| PL3 |  | Included in ME 1, 2, 3, 4 |
| PL4 |  |                           |

|     |              |                  |
|-----|--------------|------------------|
| PL5 | 1-518-115-XX | Lamp, record; FL |
| PL6 | 1-518-115-XX | Lamp, record; FR |
| PL7 | 1-518-115-XX | Lamp, record; BL |
| PL8 | 1-518-115-XX | Lamp, record; BR |
| PL9 | 1-518-115-XX | Lamp, pan pot    |

|      |              |                             |
|------|--------------|-----------------------------|
| PL10 | 1-518-115-XX | Lamp, pause muting          |
|      | 1-509-427-00 | Voltage Selector (PX Model) |
|      | 1-533-102-XX | Holder, fuse (PX Model)     |
|      | 1-534-487-XX | Cord, power (PX Model)      |
|      | 1-534-538-21 | Cord, power (USA Model)     |
|      | 1-536-376-00 | Terminal strip; 1L1         |
|      | 8-824-729-40 | Head, record; RP138-2904    |
|      | 8-825-527-00 | Head, erase; EF137-2904H    |
|      | 8-829-342-40 | Head, playback; PP138-4204  |

**ACCESSORIES**

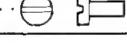
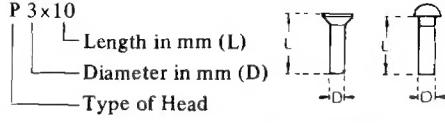
| <u>Part No.</u>   | <u>Description</u>                   |
|-------------------|--------------------------------------|
| X-2440-015-0      | Reel Ass'y, R-7ES (USA Model)        |
| X-2440-015-1      | Reel Ass'y, R-7ES (PX Model)         |
| X-3701-018-2      | Tips Ass'y, cleaning (PX Model)      |
| 1-534-049-31      | Cord, connection (RK-74) (USA Model) |
| 1-534-049-51      | Cord, connection (RK-74) (PX Model)  |
| 3-401-193-00      | Cleaning Ribbon (USA Model)          |
| 3-518-067-01 ~ 61 | Pulley, motor (PX Model)             |
| 3-518-068-01 ~ 61 | Pulley, motor                        |
| 3-780-340-21      | Manual, instruction (USA Model)      |
| 3-780-340-61      | Manual, instruction (PX Model)       |
| 8-918-222-11      | Tape, demonstration; DSE-4721        |

## SECTION 7

## HARDWARE

| <u>Part No.</u> | <u>Description</u>   | <u>Part No.</u> | <u>Description</u>    |
|-----------------|--|-----------------|-----------------------|
| <b>SCREWS</b>   |  |                 |                       |
|                 | All screws are Phillips type (cross recess type) unless otherwise indicated. | 7-682-950-01    | PSW 3 x 12            |
| 7-621-259-45    | P 2.6 x 6  | 7-683-140-20    | 3 x 6, cone point     |
| 7-621-259-55    | P 2.6 x 8  | 7-683-141-21    | 3 x 8, cone point     |
| 7-621-259-65    | P 2.6 x 10   | 7-683-237-31    | 3 x 3, hexagon socket |
| 7-621-560-22    | K 2.6 x 22   | 7-683-238-31    | 3 x 4, hexagon socket |
| 7-621-729-79    | P 2.6 x 6, self-tapping  | 7-683-242-31    | 3 x 10, cone point    |
|                 |  | 7-685-145-31    | P 3 x 6, self-tapping |
|                 |  | 7-685-146-21    | P 3 x 8, self-tapping |
| <b>WASHERS</b>  |  |                 |                       |
| 7-628-154-15    | PS 2.6 x 6   | 7-623-104-11    | 1.7 (middle)          |
| 7-628-254-05    | PS 2.6 x 5   | 7-623-107-05    | 2.6 (small)           |
| 7-682-123-01    | P 2 x 3  | 7-623-107-18    | 2.6                   |
| 7-682-146-01    | P 3 x 5  | 7-623-107-19    | 2.6 (middle)          |
| 7-682-150-01    | P 3 x 12   | 7-623-108-08    | 3 (small)             |
| 7-682-171-01    | P 4 x 45   | 7-623-108-09    | 3 (small)             |
| 7-682-253-92    | P 2.6 x 4  | 7-623-108-11    | 3 (middle)            |
| 7-682-254-32    | P 2.6 x 10   | 7-623-108-21    | 3 (large)             |
| 7-682-347-04    | RK 3 x 6   | 7-623-110-08    | 4 (small)             |
| 7-682-350-04    | RK 3 x 12  | 7-623-110-18    | 4 (middle)            |
| 7-682-547-05    | B 3 x 6  | 7-623-408-01    | 3, w/ext. tooth       |
| 7-682-552-04    | B 3 x 16   |                 |                       |
| 7-682-624-01    | PS 2 x 4   |                 |                       |
| 7-682-626-01    | PS 3 x 6   |                 |                       |
| 7-682-645-01    | PS 3 x 4   |                 |                       |
| 7-682-646-01    | PS 3 x 5   | 7-624-104-01    | E2                    |
| 7-682-647-01    | PS 3 x 6   | 7-624-106-01    | E3                    |
| 7-682-648-01    | PS 3 x 8   | 7-624-108-01    | E4                    |
| 7-682-652-01    | PS 3 x 16  | 7-624-109-01    | E5                    |
| 7-682-660-01    | PS 4 x 6   | 7-624-111-01    | E7                    |
| 7-682-667-01    | PS 4 x 25  | 7-624-112-01    | E8                    |
| 7-682-947-01    | PSW 3 x 6  | 7-623-508-01    | Lug, 3                |
| 7-682-948-01    | PSW 3 x 6  |                 |                       |

**Hardware Nomenclature**

|  |   |  |   |
|--|---|--|---|
| <b>P</b> – Pan Head Screw .....  |  | <b>SC</b> – Set Screw .....                |  |
| <b>PS</b> – Pan Head Screw with Spring Washer .....                                  |  | <b>E</b> – Retaining Ring (E Washer) ..... |  |
| <b>K</b> – Flat Countersunk Head Screw .....   |  | <b>W</b> – Washer                          |   |
| <b>B</b> – Binding Head Screw .....  |  | <b>SW</b> – Spring Washer                  |   |
| <b>RK</b> – Oval Countersunk Head Screw .....  |  | <b>LW</b> – Lock Washer                    |   |
| <b>T</b> – Truss Head Screw .....  |  | <b>N</b> – Nut                             |   |
| <b>R</b> – Round Head Screw .....  |  |  |   |
| <b>F</b> – Flat Fillister Head Screw .....   |  |  |   |
| <b>Example</b>   |   |  |   |
|  |   |  |   |

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